HNOLOGY DEPARTMENT

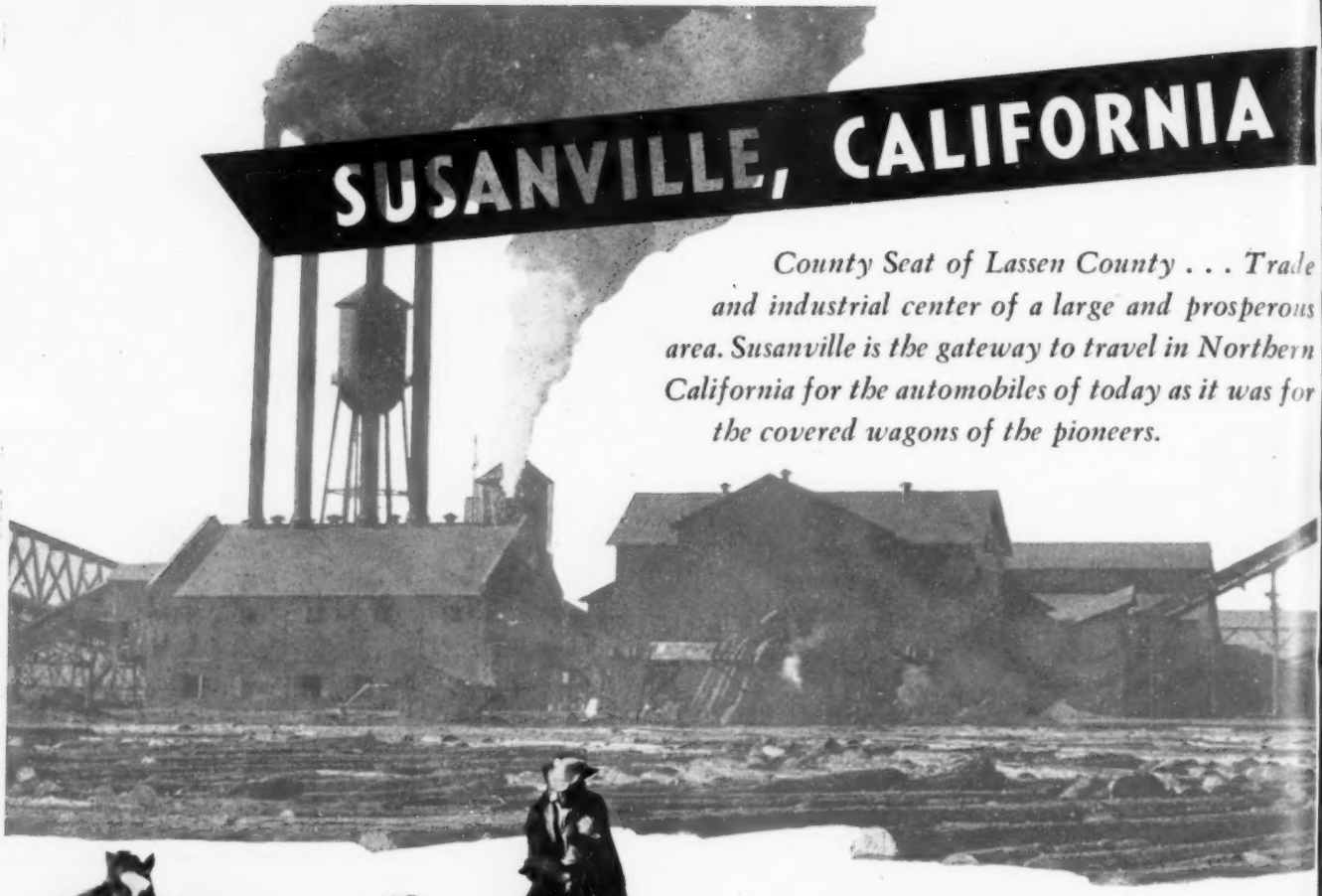
TELEPHONE ENGINEER and MANAGEMENT

PUBLIC LIBRARY
JUN 24 1949
DETROIT

JUNE, 1949

SUSANVILLE, CALIFORNIA

County Seat of Lassen County . . . Trade and industrial center of a large and prosperous area. Susanville is the gateway to travel in Northern California for the automobiles of today as it was for the covered wagons of the pioneers.



This colorful city is one of the oldest in Northern California and still retains much of the atmosphere of its pioneer origin, even though it is, today, a modern city with all facilities for good living. Large forest areas nearby supply three sawmills and two box factories. The valleys support thriving agricultural and livestock operations to round out the balanced economy of this city.

Susanville is one of the More Than 1200 Cities and Towns for which we publish telephone directories. We publish the Susanville telephone directory for the Public Utilities California Corporation according to our Complete Directory Service Plan. This Plan, which includes the sale of advertising, compilation and proof-reading, is the result of combining the best methods we have evolved during years of publishing telephone directories for both large and small communities across the nation. This plan, in combination with our specially trained personnel, is our proven formula for more accurate and attractive directories which make more money for the telephone companies we serve.

Your telephone directory should be a hard-working, money-making ambassador of good will for your Company. If for any reason your present directory publishing procedure is not entirely satisfactory, we would like an opportunity to show you how General Telephone Directory Company's Complete Directory Service Plan can produce better subscriber relations and more net advertising revenue for your Company.

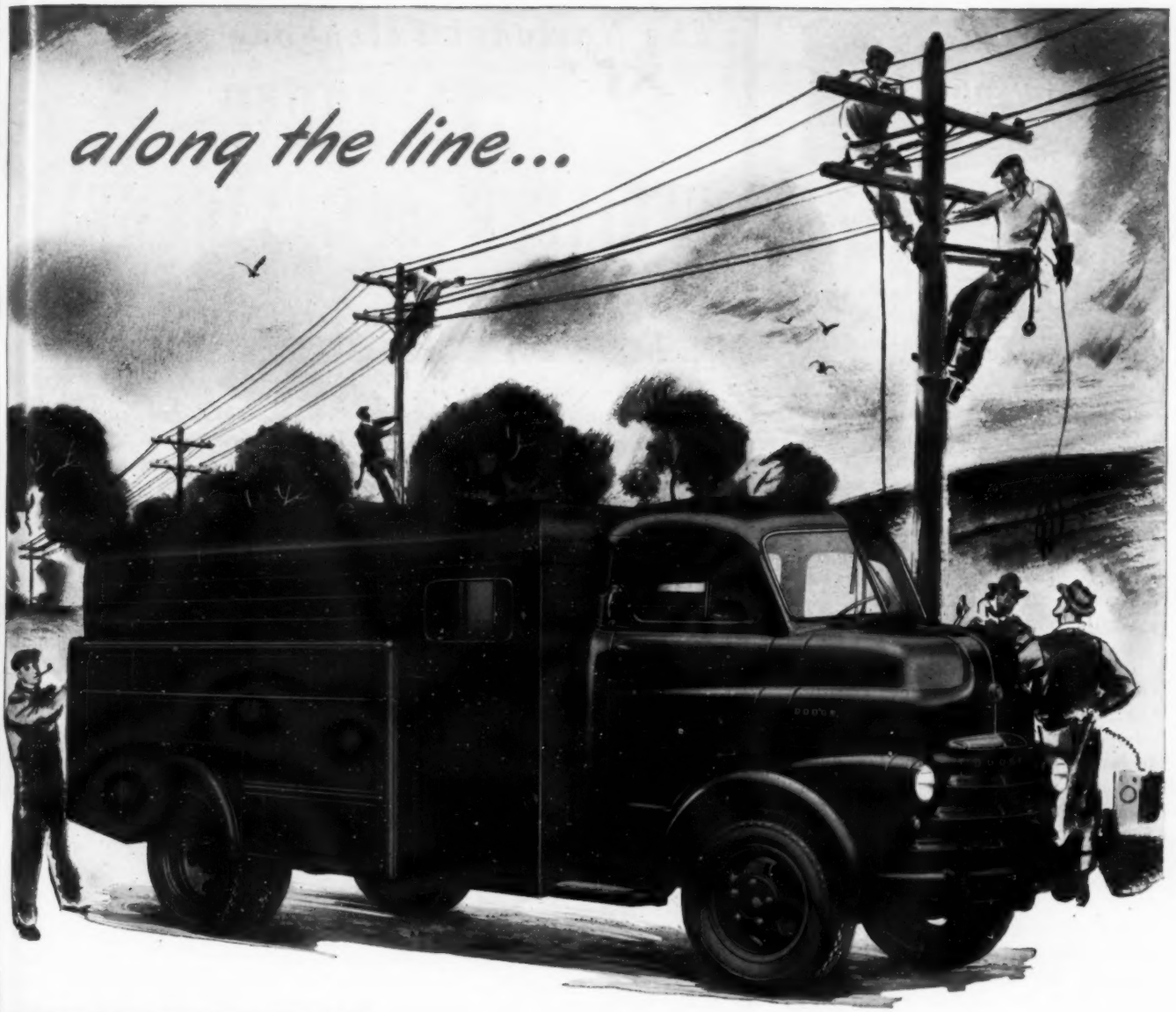
GENERAL TELEPHONE DIRECTORY COMPANY

EASTERN OFFICES

185 North Wabash Avenue, Chicago 1, Illinois • Telephone—STate 2-5478
G. Daniel Baldwin Building, Erie, Pennsylvania • Telephone 2-4187
420 Columbia Street, LaFayette, Indiana • Telephone 4854
Washington Building, Madison, Wisconsin • Telephone—Fairchild 6026

WESTERN OFFICES

604 Pine Avenue, Long Beach 12, California • Telephone 6-7221
1220½ Texas Avenue, Lubbock, Texas • Telephone 2-6330
Peyton Building, Spokane, Washington • Telephone—Main 8644



POWERS **CREW COMPARTMENT LINE CONSTRUCTION AND MAINTENANCE BODIES**

assure safety, comfort

Built-in crew compartment accommodates four men in addition to three men in the truck cab. Plenty of large, deep compartments, plus inside shelves and racks, carry every necessary piece of equipment and material required for line jobs. All-steel construction throughout makes for maximum safety to crews and assures a long lasting vehicle that will give years of trouble-free service. Write for complete information.

ALL-STEEL POWERS Public Utility Bodies

McCABE POWERS AUTO BODY CO.

5900 N. BROADWAY • ST. LOUIS 15, MO.

OVER 75 YEARS EXPERIENCE

IT SEEMS TO US . . .

HAROLD C. WHITE, Jamestown, newly elected president of the New York State Telephone Association was in trouble recently because of his picture that appeared in our May issue. While we attended the convention in Jamestown last month one of the local businessmen, a member of one of the civic clubs, told us Hal was fined by the club for using a picture made a number of years ago. In our report on this convention you will see the latest picture.

• • •

DR. MEL WRIGHT of the Alexandria (Minn.) Telephone Company has been elected president of the Minnesota Dental Association. His duties in that association cause him to travel almost as much as he does on telephone business. He and Mrs. Wright were guests of MR. JOHN H. WRIGHT, Jamestown, at the recent New York convention.

• • •

And while we are mentioning the New York meeting here is a bit of applause for those who contributed so much to its success. MRS JOHN H. WRIGHT gets special mention. The pre-convention party and golf tournament resulted in the largest state association attendance we have seen and enjoyed.

• • •

A letter from JAY HOUGHTALING, now on special assignment to the municipal government of Anchorage, Alaska, gave us much information on the installation of the new telephone exchange and equipment there. He promised pictures as the installation progresses—we are publishing his letter in this issue in our Letter Column.

• • •

Quite a few of our readers have been using our Editorials in their local newspapers of late. Among them are the Athens (Ohio) Home Telephone Company, Dick Reynolds of the Inter-Mountain Telephone Co., Bristol, Tenn., and the Orange County Telephone Co., Middletown, N. Y. Although our magazines are copyrighted we give permission to any telephone company to use our material. See the notice at the bottom of Editorial page.

The National Telephone Magazine

TELEPHONE ENGINEER and MANAGEMENT

JUNE, 1949 **VOL. 53, NUMBER 6**

Editor, RAY W. SMITH • *Advertising Director*, ROY F. SMITH
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Circulation Mgr., BERNADINE STEPHENS • *Production Mgr.*, MARGARET INDIA

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FRONT COVER: The cover photograph shows the construction and maintenance forces which the Southeast Missouri Telephone Co. brought to Cape Girardeau, Mo., following the cyclone which hit that city the evening of May 22nd, 1949. The company reported 3,500 telephones out of order following the storm which destroyed 225 homes and business establishments and partially wrecked 250 others. Twenty-three dead and over 200 were hospitalized. The company estimates its damage at $40,000. All service was restored in six days. 240 telephones cannot be replaced until homes are built or repaired.

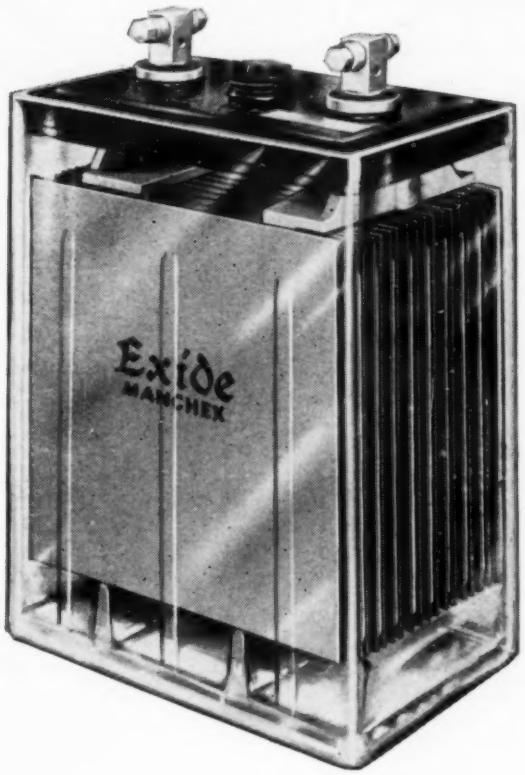
Published monthly by TELEPHONE ENGINEER Publishing Corporation
7720 Sheridan Road - Phone Rogers Park 4-3040 - Chicago 26, Illinois

West Coast Representatives, BRAND & BRAND
1052 West 6th Street, Los Angeles, California

Copyright 1949 by Telephone Engineer Publ. Corp.

VOLUME 53, NUMBER 6. Published monthly by Telephone Engineer Publishing Corporation. Office of Publication, Pontiac, Illinois. Executive and Editorial Office, 7720 Sheridan Road, Chicago, Illinois. Subscriptions: U. S., Cuba, Mexico, $2.00 per year; Canada $2.50; in all other countries, $4.00. Single copies, U.S.A. 20 cents. Entered as second class matter at the post office at Pontiac, Illinois, under the act of March 3, 1879.

The New EXIDE-MANCHEX Battery



DEPENDABLE, ECONOMICAL POWER for telephone service . . .

Only the Exide-Manchex Battery has the manchester positive plate . . . the unique plate with the lead button construction. The buttons, rolled strips of corrugated lead, are pressed into holes of the lead antimony grid. Forming action expands the buttons and locks them securely in place. Only a comparatively small portion of the total lead in the buttons is formed initially into active material; the remainder is available for gradual conversion in service.

All other parts of the elements—negative plates, separators, spacers, conductors, terminals—are built to match the service qualities of the positive plate. And the result: extra long life, low maintenance cost, improved electrical characteristics, increased power (watt) output per unit of space, less weight per ampere hour output.

Use Exide-Manchex Batteries for all stationary power requirements—common battery, emergency reserve, signaling, PBX and other applications.

Exide
BATTERIES

"Exide" *Reg. Trade-mark U. S. Pat. Off.*

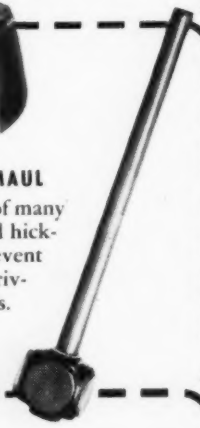
1888 . . . DEPENDABLE BATTERIES FOR 61 YEARS . . . 1949

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • *Exide Batteries of Canada, Limited, Toronto*

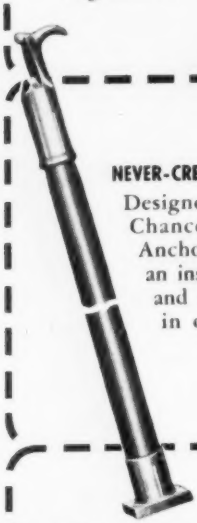
SAVE TIME on ANCHOR INSTALLATIONS

CHANCE TOOLS Make the Job Easy

TELESCOPING TRIP AUGER
Bores like a bit, telescoping rod from 5 to 8 feet, adjustable reamer for various hole sizes, easy dump trip.



NEVER-CREEP MAUL
This handy tool of many uses has seasoned hickory inserts to prevent damage when driving anchor rods.



NEVER-CREEP INSTALLING BAR
Designed for use with Chance Never-Creep Anchors, it combines an installing bar, tamp and anchor retriever in one tool.

ANCHOR EXPANDING AND TAMPING BAR
For use with expanding anchors. Hook wraps around anchor rod to prevent slipping off anchor top plate.

C4716

Write for Complete Information

ABC INDUSTRIES

A·B·CHANCE CO·
CENTRALIA, MISSOURI.

The Open Forum

"A Combination That Pleases"

Dear Ray:

This is a belated reply to your good letter of March 25th.

I am getting your magazine regularly now altho somewhat late thru no fault of yours. Mail service up here, except air-mail is a very slow affair and second class matter especially seems to be a stepchild of the post office department. When it does arrive it is just as much appreciated. To us here however your NEWSLETTER, which

JAY HOUGHTALING

comes much faster keeps us up to the minute on the political and organizational changes in the field so that the heavier articles and the more detailed reports can wait the coming of the magazine. I like the combination very much.

I am enclosing a carbon copy of something I wrote for the benefit of one of my relatives and perhaps it may be of interest to you too. If you get tired reading it just throw it in the waste basket. In it I have tried to give my impressions of Anchorage.

We are going to have a fine exchange here when we get it finished but it means a lot of hard work to do that. The building is one of the finest I have ever seen and any exchange in our large cities could well be proud of it. The cable job was amply engineered and they should be able to care for the telephone needs of this community for years to come, unless very unusual growth occurs.

Later, perhaps, we may have some pictures to send you.

Wishing you the very best of luck I remain,

JAY HOUGHTALING
CITY OF ANCHORAGE THIRD DIVISION
BOX 400, CITY HALL
ANCHORAGE, ALASKA

Thanks, Sergeant . . .

Dear Sirs:

I've enclosed a money order for $2.00, which I understand is subscription rate for one year for your magazine.

I have read your magazine at Ft. Benning, Ga., Signal Office, where I'm stationed. After their subscription lapsed I borrowed Sgt. Skutley's copies. It's one of the best magazines on the telephone industry that I've read.

The information in your magazine has helped me in my job as combination man in one of the Exchanges at Ft. Benning, Ga. I have maintenance of 400 line North Electric All Relay Switchboard. Having some 200 working lines, installation and repair of telephones, and light construction.

SGT HUBERT W. FORD
55A BAKER VILLAGE
COLUMBUS, GEORGIA

"Helpful Articles Are Our Specialties"

Dear Sirs:

I would like, if possible, to subscribe to TELEPHONE ENGINEER AND MANAGEMENT and FORTNIGHTLY TELEPHONE ENGINEER. I understand the subscription price is $2.00 a year, and I am enclosing a money order for that amount.

I have, at various times, read copies of your fine magazines and have found some very useful information in several of the articles which they contained.

At the present time I am employed by the United Telephone Company as a combination man.

RAYMOND E. DRYSDALE
803 22ND AVENUE
MONROE, WISCONSIN

EXPERIENCE PAYS OFF
In a Tough Selling Market!

That's why Independent and Bell Telephone Companies are turning to L. M. BERRY & CO. for better planning and selling of their "Yellow Pages" advertising

1. PLANNING—Each BERRY sales canvass is carefully planned before a single call is made. Prospects are listed on cards and assigned to salesmen by areas. No sale is overlooked.

Let's face it! The selling market for directory advertising is tough . . . may get tougher. In such a market, there is no substitute for EXPERIENCE . . . the kind of practical, results-getting EXPERIENCE L. M. BERRY & CO. has gained through the years since 1910. Today, BERRY men produce highly satisfactory advertising revenue for over 180 Independent and Bell Telephone Companies in more than 4000 cities and towns in 24 states. What we do for those companies, we will be glad to do for you.

2. SELLING—Well-trained and supervised. BERRY salesmen plan each call in advance . . . present layouts and copy . . . show all prospects the benefits of directory advertising.

3. COMPILING—BERRY compilation units are the last word in accuracy as they draw up ad schedules, check alphabetical and classified manuscripts, etc.

L. M. BERRY & CO.

Directory Advertising Exclusively

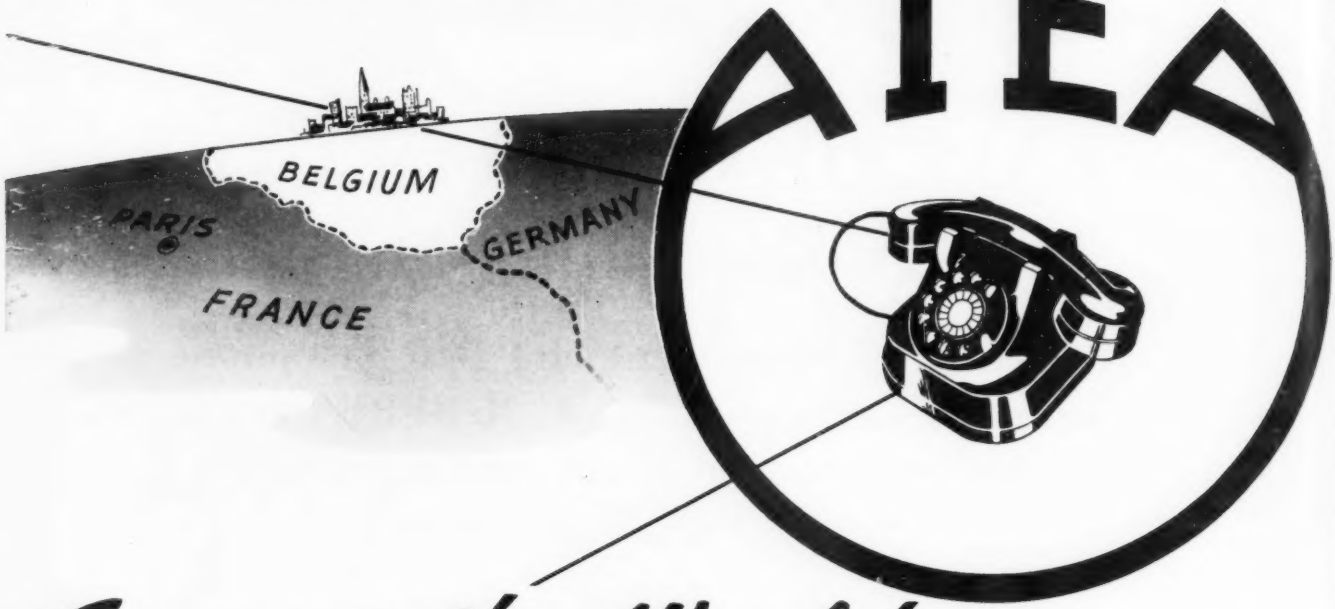
4. PRODUCING—Skilled BERRY production men follow through on artwork, cuts and type . . . can arrange for complete printing and binding of directories.

L. M. BERRY & COMPANY • Hulman Building • Dayton 2, Ohio • Michigan 7421 • L. D. Loop 16

14 **BRANCH OFFICES: Birmingham, *Alabama* • Bristol, Chattanooga, Knoxville, Memphis and Nashville, *Tennessee* • Harrisburg, *Pennsylvania* • Jackson, *Mississippi* • Louisville, *Kentucky* • Milwaukee, *Wisconsin* • New Orleans, *Louisiana* • Rochester, *New York* • Tampa, *Florida* • Warsaw, *Indiana***

BERRY REPRESENTATIVES SELL ADVERTISING FOR MORE TELEPHONE DIRECTORIES THAN ANY OTHER COMPANY

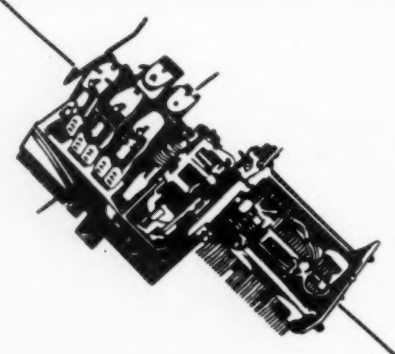
from ANTWERP-



ATE

Around the World

travels the trademark of Automatique Electrique. Through the facilities of the International AUTOMATIC ELECTRIC Group, communication and electrical industries the world over have come to know this mark on superior telephone instruments and exchange equipment—products of a half-century of manufacturing experience.



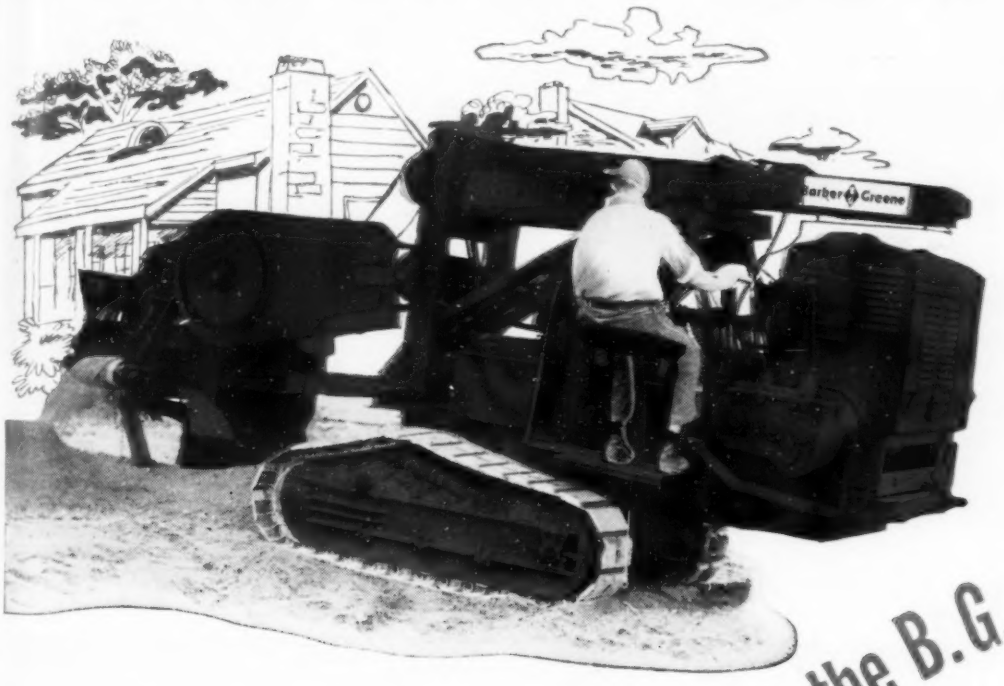
Wherever you are—whatever your equipment requirements may be—the International AUTOMATIC ELECTRIC Group is prepared to serve you with products of the finest quality, made by leading manufacturers of telephone equipment.

International
AUTOMATIC ELECTRIC
Corporation
1027 WEST VAN BUREN STREET, CHICAGO 7, U.S.A.

INTERNATIONAL AUTOMATIC ELECTRIC SALES CO., S. P. A.
Via di San Basilio 41, Rome, Italy

Export Distributors For:
AUTOMATIC ELECTRIC COMPANY, Chicago, U. S. A.
PHILLIPS ELECTRICAL WORKS LIMITED, Brockville, Canada
AUTOMATIQUE ELECTRIQUE, S. A., Antwerp, Belgium
AUTELCO MEDITERRANEA, S. A. T. A. P., Milan, Italy
and other manufacturers
Selling Companies and Agents Throughout the World

Barber-Greene



720 Ditcher

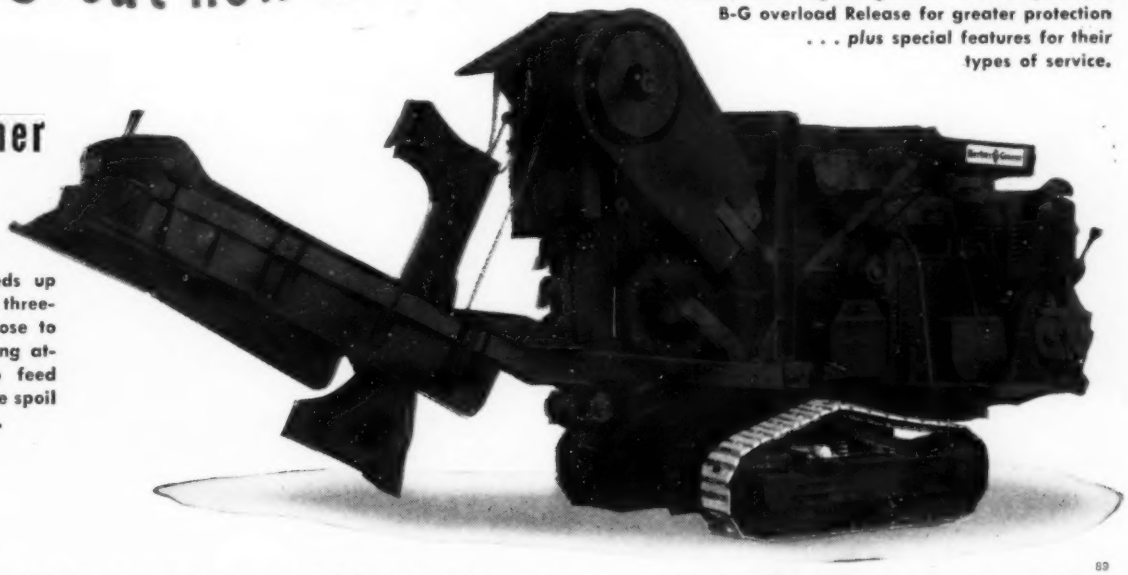
For digging trenches 8" to 11" wide—up to 4 feet in depth. Digging speeds up to 32 F.P.M.; traveling speeds as high as 234 F.P.M. adjustable spoils conveyor discharges on either side. Three-position boom adjustable to dig close to obstructions. Simple B-G controls, easy-steering.

Two great new ditchers in the B.G. line!

These two new ditchers bring exclusive, time-proved B-G advantages . . . the B-G Vertical Boom that digs straight down, leaves no ramp . . . close-spaced, self-cleaning buckets that *cut*, like a milling machine, into toughest ground . . . the patented B-G overload Release for greater protection . . . *plus* special features for their types of service.

710 Ditcher

Digs trenches 5½" wide up to 42" deep. Digging speeds up to 32 F.P.M.; travel speeds up to 234 F.P.M. Vertical three-position boom digs close to obstructions. Cable-laying attachment available to feed cable and plow over the spoil in one continuous pass.



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Ask your Barber-Greene distributor for full details on the B-G Ditcher which interests you — or write to Barber-Greene Company, Aurora, Illinois.

BARBER · GREENE COMPANY, AURORA, ILLINOIS

Constant flow Equipment

LOADERS · PERMANENT CONVEYORS · PORTABLE CONVEYORS · COAL MACHINES · BITUMINOUS PLANTS · FINISHERS · DITCHERS

There's a NEW MORRISON *Carry-All* for Every Purse and Purpose!

MORRISON "CARRY-ALLS" are sold through any franchised chassis dealer by established truck equipment distributors.

The NEW MORRISON "CARRY-ALL" All-Steel, All-Purpose Service Body cuts Your TELEPHONE INSTALLATION and Service Call Costs!

MORRISON STEEL PRODUCTS, Inc., designers, engineers and manufacturers of precision steel products for the automotive industry for over 35 years, present this new line of service and utility light truck bodies.

Completely precision made — from draftsman's board to assembly line — the Morrison "CARRY-ALL" is the product of the latest engineering techniques of the modern metal stamping art. Mass produced from extensive and complete tooling, and assembled in elaborate fixtures, the Morrison "CARRY-ALL" combines the light weight and strength of high tensile steel — function and appearance at the right price!

The Morrison "CARRY-ALL" all-steel underbody bridge-type construction means more strength—more pay load—more space—more service! From its roomy weathertight key-locked and handled compartments to its offset-reinforced non-skid heavy-load floors . . . with its many attractive and functional features and accessories . . . you get more in the Morrison "CARRY-ALL" . . . because MORRISON STEEL PRODUCTS have put more into it!

Optional equipment includes:

- Tailored Canvas Caravan Top, Sliding Metal Roof
- Overhead Ladder Rack with Spring Hold Downs
- Sectional Material Trays with Adjustable Partitions
- Compartment Shelves, Pipe Vise Brackets and Pipe Racks.

Write for Bulletin B49-1-A -- It's Yours FREE for the asking.

MORRISON STEEL PRODUCTS, INC. SERVICE UTILITY MORRISON "Carry-All" Service Body Division 615 AMHERST STREET, BUFFALO 7, N. Y.

INVEST YOUR "PIN MONEY" IN THE BEST

LOCUST PINS

Locust wood is practically impervious to decay and is impenetrable to moisture. Because of its close-grained hardness locust can be machined into strong, long lasting pins of standard specifications that can be counted on to retain their size and shape.

OAK BRACKETS

Oak pole brackets of unquestioned quality are in demand now as never before in the face of the qualifications necessary in the equipment and materials needed today to "keep 'em talking." Present day maintenance and repair have every reason to demand and get only the best.

GLASS INSULATORS

Research and experiment have produced in Hemingray insulators a glass insulator that is better than any ever before offered.

Non-porous, non-deteriorating, uniform coefficient of expansion and high mechanical as well as high dielectric strength are some of the many qualities that rank Hemingray the "best on the line."

BUCKEYE TELEPHONE and SUPPLY CO.
COLUMBUS 6, OHIO

A Simple, Up-to-the-minute Guide to Telephone Fundamentals

to give you the groundwork you need for best results in practical work.

This first new telephone book in years tells how modern telephone systems operate, giving the electrical theory and the technical information on equipment and circuits that wil be most helpful as a foundation for the non-engineering worker in telephone installing, servicing, etc.

FUNDAMENTALS OF TELEPHONY

By ARTHUR L. ALBERT

374 pages, 5½ x 8½, 200 illustrations, $3.75

This book provides the telephone worker with an understandable treatment of the technical aspects of his work, valuable as a key to better results and improved skill in any job he may undertake. The fundamentals of electricity and acoustics are covered, followed by a full elementary treatment of telephone equipment and circuits, their elements, characteristics, functions, etc., illustrated by many numerical examples.

Order direct from

TELEPHONE ENGINEER PUBLISHING CORP.
7720 Sheridan Road **Chicago 26, Illinois**

3 FACTS TO REMEMBER

About Wood Preservation

1 **Creosote Oil, properly applied, makes wood last 3 to 5 times longer. Its deep penetration protects wood from dry rot, termites, fungi and other destructive organisms.**

2 **Creosote Oil is the most widely used wood preservative in the world.**

3 **Pressure treatment with Creosote Oil has been used successfully under practically all conditions for more than 100 years. Its effectiveness has been *proved* beyond the shadow of a doubt.**

*Reg. U. S. Pat. Off.

For these reasons, Creosote Oil continues to be the preferred wood preservative of America's leading railroads and utilities for the protection of their huge investments in ties, poles, and structural timber.

For these reasons, also, Barrett continues to recommend pressure treatment with Creosote Oil as the most dependable wood-preserving method. Our half-century of experience is behind this conclusion.

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

Available Now
and
Better Than Ever!

SWIVEL JAW

NEW!

SEYMOUR SMITH
"Snap-Lock"
PLIER-WRENCH

3 NEW Features

CAPACITY INDICATOR

1. Swivel Jaw holds odd-shaped pieces.
2. Capacity Indicator pre-sets jaw spread.
3. Release unlocks jaws instantly by a touch of the finger.

Tremendous grip. Use as a plier or, when locked closed, for holding articles to be drilled, welded, ground, etc. 1000's of uses around home, farm, garage, shop. No. 2607, 7", $1.75; No. 2610, 10", $2.25. At your dealer or write direct. Free circular.

INSTANT LOCK RELEASE

SEYMOUR SMITH & SON, INC.
901C Main St., Oakville, Conn.

ALL the strength and durability inherent in steel are combined—with definite economies—in *Crapo* Galvanized Steel Strand. Heavy, ductile, tightly-bonded zinc coatings, applied by the famous *Crapo* Galvanizing Process, provide lasting protection against corrosion.

Ask the distributor of *Crapo* Galvanized Products near you or write direct for further information!

INDIANA STEEL & WIRE CO.
MUNCIE, INDIANA

FARM TELEPHONES:—"Nationwide, somewhat over 45 percent of our farms have telephones. In six of the nine census regions of the country, farm telephone development is 70 percent, the same as in the cities. It is only in the Southern and Southwestern tier of states where farm telephone development is still on the low side and this results from the low economic status which prevailed for most of the farmers in those areas before the war. The sharp rise in farm income since the start of the war has resulted in a new and increased demand for farm telephone service.

"While it has been impossible to keep abreast of the demand, it is a fact that the percentage of farms with telephones has nearly doubled since 1940. Approximately 1,500,000 rural telephones have been added since V-J alone—this is at the rate of well over 1,000 per day. In the great majority of cases, new installations are providing a service much improved over that at the start of World War II.

"Turning to Bell Company figures, for they are more readily available than figures from Independent companies, we find that nearly 70 percent of all rural customers are today on lines with 8 parties or less. Eighty-seven percent of all rural customers have selective ringing of some kind as compared with 76 percent on January 1, 1946.

"Only 12 percent of all Bell rural customers continue to use magneto telephones. This compares with 22 percent in 1946. Most of the Independent companies are improving their service in a similar manner . . . It is clearly apparent that the aim of the industry is to make good telephone service available as fast as practicable to every farmer who wants it and is willing to pay a reasonable price for it."—**Excerpt from address delivered by R. A. Lumpkin, Mattoon, Ill., before the 1949 convention of the Wisconsin State Telephone Association.**

• • •

EXPANSION:—"These programs for expansion and improvement of service require large amounts of new capital, and that is one of the biggest problems we have to face today. In the past, by pouring a good share of our earnings back into the plant we were able to provide for much of our expansion without seeking new capital.

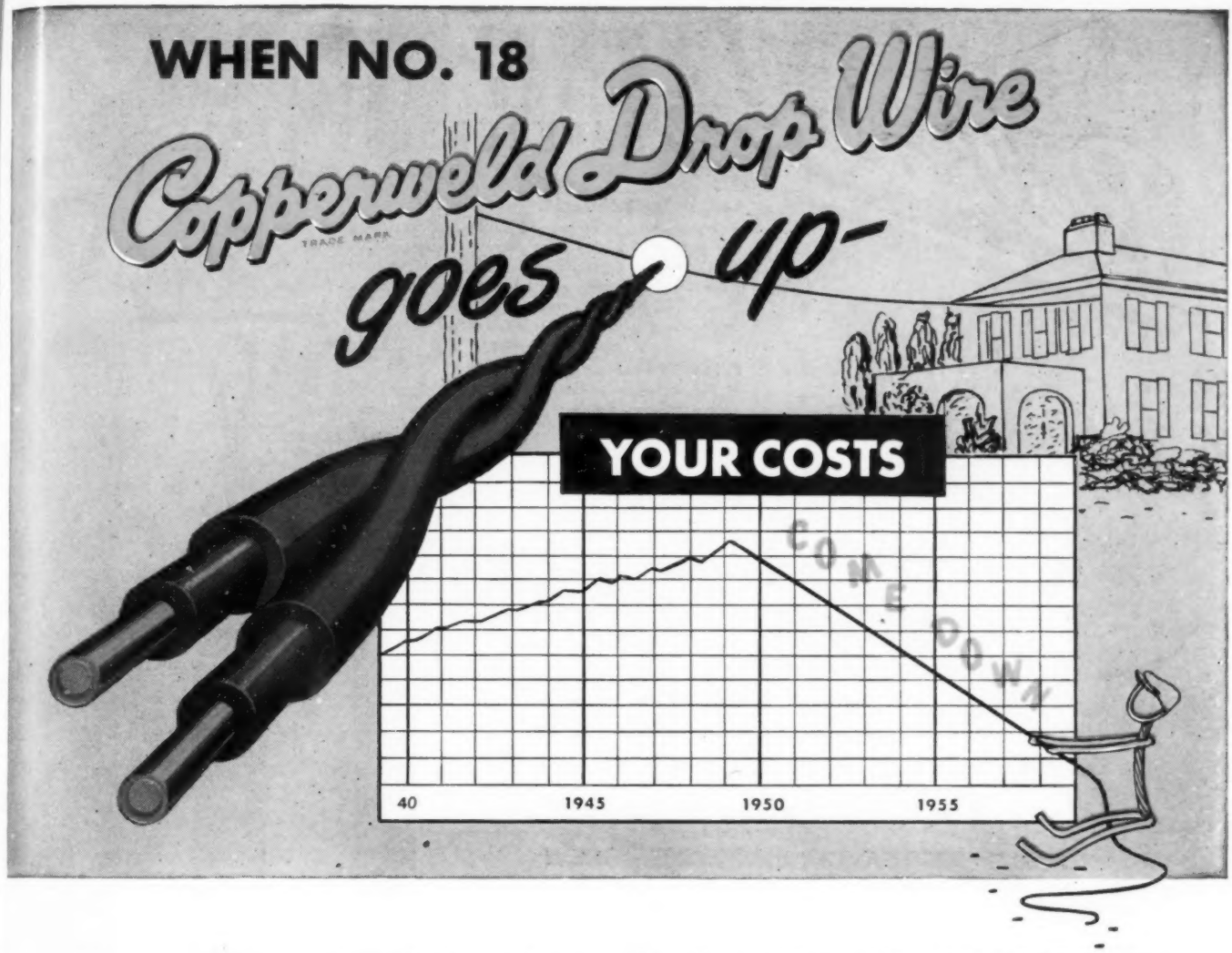
"This is not possible today as our programs are much larger in size while we are using the fifty-cent dollar.

"In order that we can obtain the necessary capital it is essential that we keep our companies in a sound financial condition. Unless our financial integrity is maintained, our programs for expansion and improvement will be seriously impaired."—**Excerpt from address made by J. K. Stoltzfus, Birdsboro, Pa., before the 1949 convention of the Pennsylvania Independent Telephone Association.**

• • •

ALLEGED LUXURIES:—"Those who are engaged in attacking the telephone company's application for rate increases, might do well to base their attack on the government, not on the telephone company. Every time any person in Sacramento, for instance, makes a long distance telephone call, the Federal Government sticks that person 25 per cent above the cost of the call. The same is true of telegraph charges.

"The 'Fair Deal' says it would be dangerous to reduce the excise taxes without increasing other taxes to replace the revenue. That's the stock argument. When they were applied, the government solemnly promised to cut them back as soon as hostilities were over." —**Sacramento (Cal.) Union.**



You save money all along the line when you install No. 18 Copperweld* Drop Wire. Why? Simply because its initial cost is lower than No. 17 drop wire of other types. And yet, No. 18 Copperweld Drop Wire provides the same breaking strength.

In addition, maintenance costs are reduced. That's because of Copperweld's durability, greater mechanical safety, and longer service life. The original high-strength of the alloy steel core in each of the wires is permanently protected by the thick copper covering—and the two metals are inseparably welded by our Molten-Welding Process.

Yes, for rugged stamina, for better conductivity—and for all-around economy—you'll find it pays to use No. 18 Copperweld Drop Wire. It's available with all types of insulation—in twisted pair and parallel constructions.

COPPERWELD STEEL COMPANY
GLASSPORT, PA.
Sales Offices in Principal Cities

NO. 18
Copperweld
DROP WIRE
is the Standard Drop Wire of the World's Leading Telephone Systems—and has been for many years.

*Trade Mark

Copperweld Drop Wire
TRADE MARK

SOLD BY LEADING DISTRIBUTORS

Reliable PULLING GRIPS FOR AERIAL AND UNDERGROUND CABLE···

½ inch to 4 inch diameter.

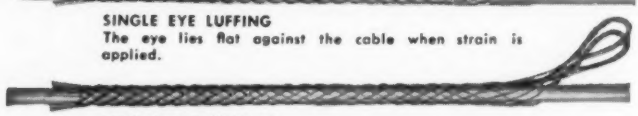
(¾" and 1" Dia. Single Weave)
(1½" to 4" Dia. Double Weave)

REINFORCED FLEXIBLE
● For pulling underground cables. Reinforcement protects wires of the grip at shoulder where wear is greatest.
Eye is formed of the wires themselves, and reinforced. There is no joint of the working end of the grip, no loss of strength.
End of each cable strand may be taped to cable insuring ultimate strength of all strands.
(Double Weave)

PLAIN FLEXIBLE
● Single weave grips for pulling aerial cable through rings without displacing them. Also used for small underground cables.
Double weave grips for pulling underground cables where wear does not warrant reinforced grips.

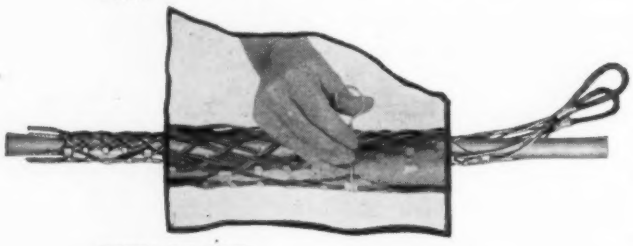
HARD WIRE
● These grips are very tough and stiff, and will withstand great wear. The grip must fit exactly for proper performance. For swabbing ducts. This grip can be packed with waste.
(Double Weave)

SINGLE EYE LUFFING
The eye lies flat against the cable when strain is applied.

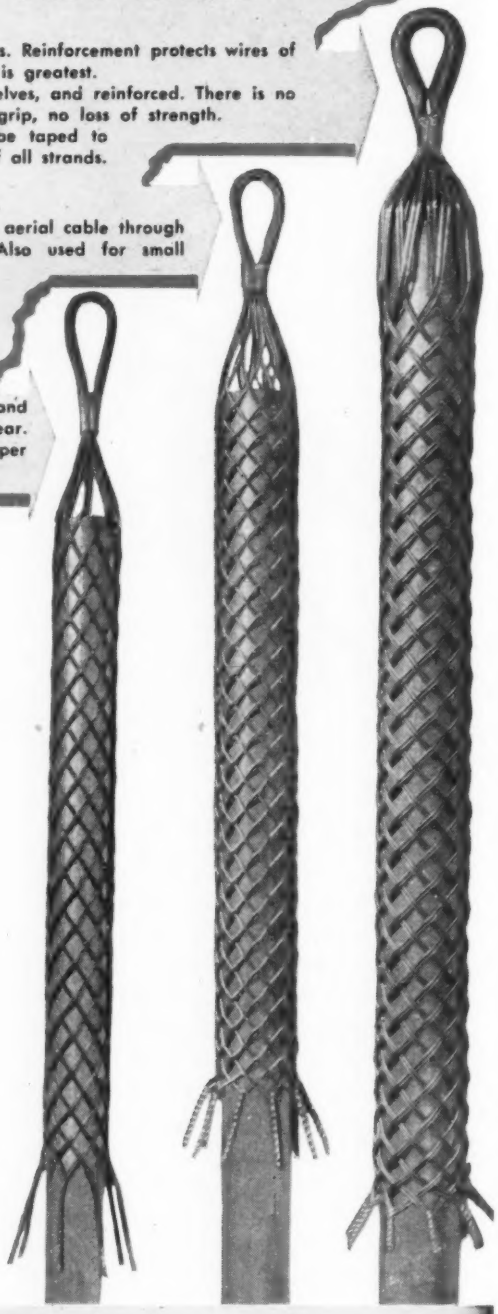


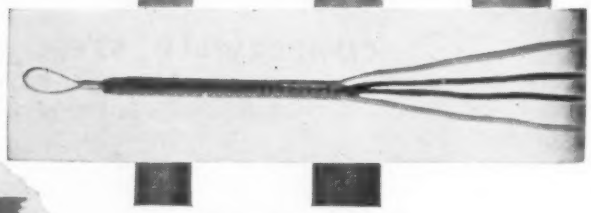
DOUBLE EYE LUFFING
Used for pulling out old cable in manhole or for pulling up slack.

SINGLE EYE SPLIT
For moving cables where end is not accessible. An arrangement of strong hooks, make the grip easy to apply, a small tool is furnished, or a small screwdriver.



DOUBLE EYE SPLIT
Application or removal of grip to cable may be done with minimum effort.
¾" Grips — supplied with rawhide lace 1½" to 4" Dia. steel hooks as shown.





MULTIPLE WIRE
● 5/16" to 1⅛" Dia. For pulling any number of wires through conduits.
When ordering, specify diameter of cable or total diameter of wires to be pulled.

Reliable
ELECTRIC COMPANY
3145 CARROLL AVENUE
CHICAGO 12
Over 40 Years Service to the Utilities

NEWSLETTER

TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

June 15, 1949

Dear Sir:

The NARUC-FCC Subcommittee, which is headed by N. Knowles Davis, chief engineer of the Georgia Public Service Commission, is the first body ever established, it is understood, by the National Association of Railroad and Utilities Commissioners to conduct a joint federal-state regulatory study of long distance rates and services. Heretofore such surveys of long distance message toll charges and services have been conducted separately by the federal agency on interstate operations and by the state commissions on the intrastate toll matters in their state areas.

The goal of the Subcommittee is to assemble for the use of the state commissions and the FCC in one report the history and background of message telephone toll rate structures and services, the present situation, the trend in rates, the changes in the classes of message toll services, and particularly the many improvements in the art of long distance telephony, such as operator toll dialing with the eventuality of subscriber toll dialing, toll ticketing, coaxial cable and radio relay, and the automatic message accounting system. Of course, the incorporation of new developments into the nationwide telephone plant requires huge expenditures of capital.

* * *

Reprint made of USITA pamphlet, "The Independent Telephone Industry in the United States," dated June 1. Pamphlet is designed to meet requests for information concerning general scope of Independent branch of telephone industry. Pamphlet shows: total number of Independent telephones at end of 1948 was 6,841,000; investment in telephone plant by Independent companies aggregated $981 million; gross revenues aggregated $270 million; Independent company employees numbered 90,000.

* * *

The membership of the North Carolina Public Utilities Commission has been increased from three to five members by action of the recently-adjourned legislature. Chairman Stanley Winborne and Commissioners Fred C. Hunter and R. G. Johnson remain as members of the new agency and two new Commissioners, Josuah S. James and Edward H. McMahan, took their oath of office in early May.

* * *

Four telephone employees whose fast thinking and quick action helped save lives endangered by asphyxiation, flood, fire and earth cave-in have been awarded silver Vail Medals and $500 in cash each for their courage and devotion to duty, the American Telephone & Telegraph Co. has announced.

The Bell System National Committee of Award also voted a special bronze plaque to a group of telephone workers who remained on duty in Vanport, Ore., until just before Columbia River flood waters swept over

their building and destroyed the entire community in May, 1948.

The four employees given silver Vail Medals are Eugene J. Magnuson of St. Louis, a splicer's helper with the Long Lines Department of the A. T. & T.; Robert Williams Case of Nedrows, N. Y., a cable splicer's helper with the New York Telephone Co.; Mrs. Frieda M. Allen of Stites, Ida., an agency manager with the Pacific Telephone & Telegraph Co.; and Wesley R. Schulz of Portland, Ore., a Pacific company installer.

* * *

Based on general reception by number of different mobile radio services through informal verbal comments & few written statements, FCC final allocations & rules for safety-special services appear to have gained generally widespread approval. There have been few formal requests for reconsideration, such as one from National Association of Taxicab Owners seeking extension of radio to taxi service eligibility to tow, repair, & supervisory vehicles.

* * *

Mutual Tel. Co. of Hawaii reports all major islands of Hawaiian group are now linked by direct operator dialing. Direct dialing started 1½ years ago when islands of Maui & Hawaii were linked to Oahu. In July, 1948 island of Kauai was brought into direct dialing system; in April of this year service was extended to island of Lanai & recently to island of Molokai. Inter-linking of all islands gives Hawaii most modern communications system of any island group in world.

* * *

Headlining fact, "Your Speech Is Taxed," West Coast Tel. Co., Everett, Wash., sent illustrated bill enclosure to subscribers. Enclosure graphically proved that taxes on telephone service per telephone collected by West Coast Tel. Co. & paid to U. S. Government rocketed from 71¢ in 1940 to $11.87 in 1948. Subscribers were urged to tell their congressmen of feelings toward "so-called luxury tax."

* * *

Highlights: Walworth County Tel. Co., Selby, S. D., constructing new metallic system....Minnesota Tel. Co. completed $40,000 improvement project in International Falls, Minn....Lodgepole Creek Tel. Co., Kimball, Neb., incorporated, will build rural line near Kimball....Illinois Consolidated Tel. Co. completed cutover of Humboldt, Ill. exchange to automatic operation....Batesville Tel. Corp. converted Versailles, Ind. exchange to automatic operation....Art Peter appointed assistant div'n. mgr., Western Light & Tel. Co., Smith Center, Kans.

United Tel. Co. installed common battery system at Waynesville, Mo. ...Peoples Tel. Co. completed cutover of Scotland, S. D., to common battery operation....J. N. Albertson, carrier sales staff engineer, Automatic Electric Sales Corp., transferred to Automatic's San Francisco office....

Ray W. Smith, Editor

CALCULAGRAPH CALCULATES IT

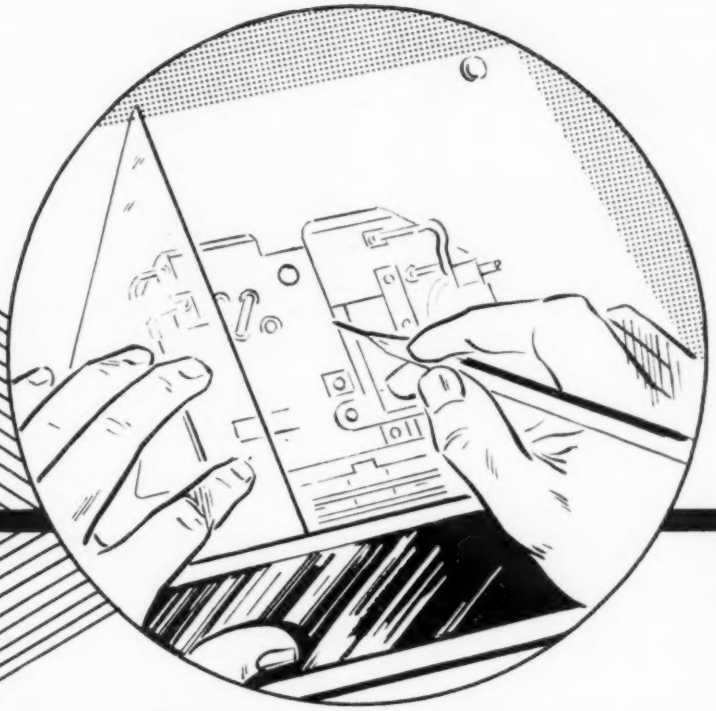
...FASTER!
...ACCURATELY!
...AUTOMATICALLY!
...EASIER!

It's sound business practice in any exchange—small or large—to rely on CALCULAGRAPH to compute and record elapsed toll time accurately to the second. Thus, all the revenue due is charged to every toll call and operators are relieved of detail work that slows switchboard service. Available in several models and adaptable to any installation from flush mounting to portable pedestal types. Every CALCULAGRAPH features low initial cost . . . dependable service year after year. Complete catalog data on request.

CALCULAGRAPH COMPANY
SUSSEX STREET • HARRISON • NEW JERSEY

Better

Design!



Another Profitable Reason Why You Should Buy Kellogg Masterphone!

Careful analysis of customer demands, parts replacement and conventional instrument construction, *plus* Kellogg's sound engineering, makes the #1000 Series Masterphone the "Telephone of Better Design."

Masterphone *is* better in design, because:

- Interconnecting block permits rapid, easy inspection and servicing.
- Protected grid wiring and switch springs assure trouble-free performance.
- Unit Assembly of induction coil, condenser, ringer, interconnecting block and dial housing assembly minimizes maintenance.
- Highest quality components assure improved performance, better service, subscriber satisfaction.

Let your Kellogg Representative show you other reasons why you should profit when you buy Kellogg Masterphone!

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

Established 1897

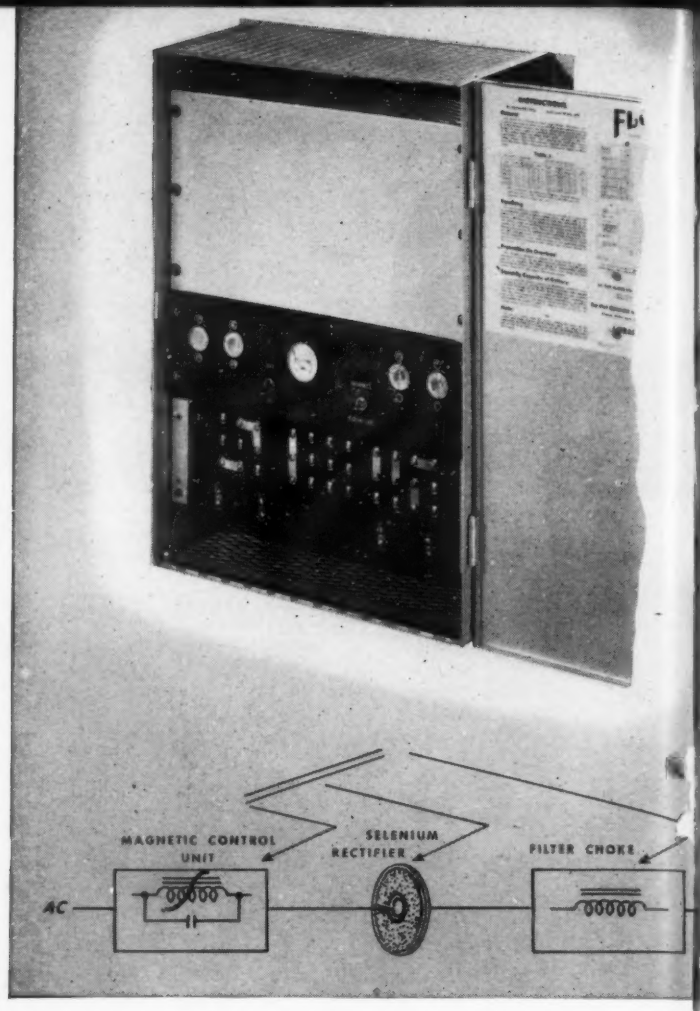
MASTERPHONE

6650 SOUTH CICERO AVENUE • CHICAGO

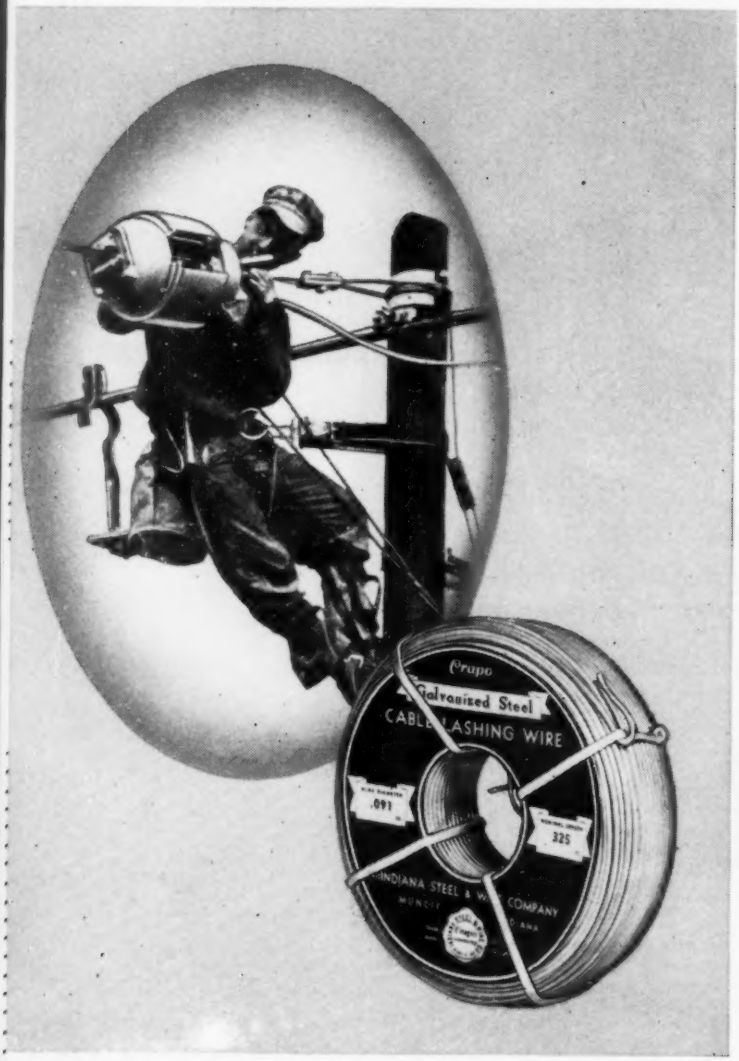
Successful INDEPENDENT TELEPHONE MAN Says:

E. W. STEFFIELD,
Doylestown Telephone Co.,
Doylestown, Ohio

"Throughout the many years we have purchased supplies from Kellogg, they have expedited all orders as rapidly as possible, and have never made an unauthorized sustitution."



No Moving Parts to Wear! The Flotrol Battery Charger, made by LORAIN PRODUCTS CORP., consists of a phase-splitting transformer and a dry-disc rectifier. Entirely automatic, it delivers correct trickle charge at constant voltage. Compensates for input voltage variations and load changes. Write to Kellogg for Bulletin No. 137.



Prompt Delivery: Available *now*, for use with modern cable spinners, is Crapo Galvanized Steel Lashing Wire. This heavily-galvanized wire is .091" diameter, comes in 325-foot coils. "Stainless Steel" Lashing Wire can also be furnished promptly in .045" and 0.65" diameters. Both are products of the INDIANA STEEL AND WIRE COMPANY.

for EASIER ORDERING PROMPT HANDLING QUICK SHIPMENTS

...send your next order to KELLOGG

When you order from Kellogg, you fill out just ONE order form for *all* your line supplies. Saves you time and work! Then your order gets prompt attention by experienced telephone men. No chance for slip-ups here! Finally, we ship quickly, from the distribution point nearest you. It's fast, sure service, and every item is *guaranteed!*

For Service from a Nearby Distribution Point, Order Your Line Supplies from:

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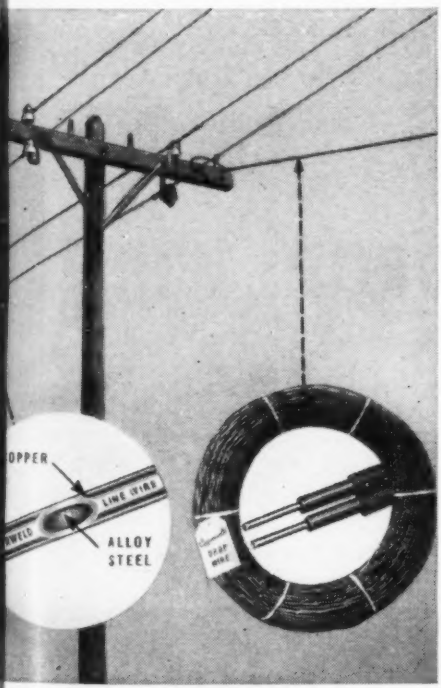
Factory and General Offices: 6650 SOUTH CICERO AVENUE, CHICAGO 38, ILL.
Branch Offices: KANSAS CITY • SAN FRANCISCO • ST. PAUL • LOS ANGELES

ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED FR HE

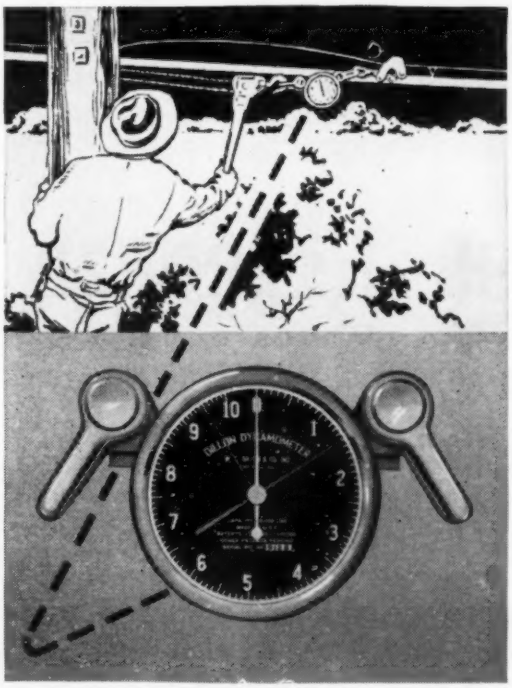
Entirely New—the low-cost Testerm Drop Wire Connector eliminates high-resistance joints when connecting subscriber drops to open wire. It mounts on the cross-arm, provides a fully-weatherproofed, easy-to-test, dry-spot connection. Made by COOK ELECTRIC CO . . . ask Kellogg for details!

Neat Precision Soldering is easy when you use a Vulcan Electric Soldering Iron. Made by VULCAN ELECTRIC COMPANY in 15 sizes of screw and plug-tip types, these irons give unimpaired heat production. The "Pygmy" tool, shown above, is especially designed for delicate work.

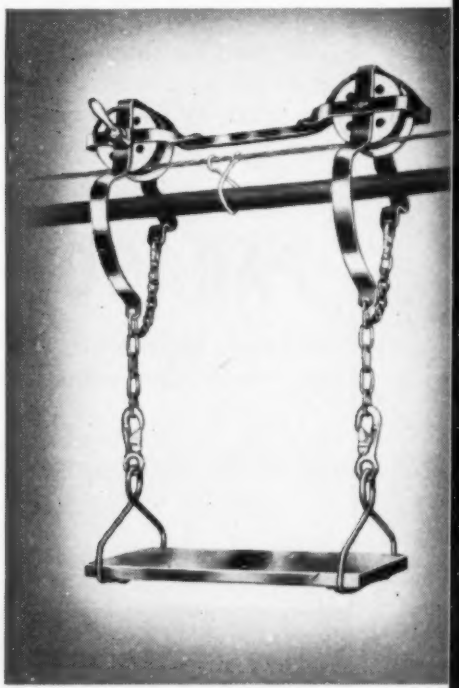
Get Maximum Battery Performance by choosing Gould Planté and Floté Batteries exclusively. They're built specifically for full-float service over amazingly long periods of time. Telephone men everywhere find they cut maintenance and replacement costs to a minimum. Manufactured by GOULD STORAGE BATTERY CORP. Write for details.



Savings All Along the Line result for telephone companies using Copperweld Line Wire and Drop Wire. They provide strength and conductivity, rust-resistance and ease of handling. Made by COPPERWELD STEEL CO., these wires improve voice transmission.



Guard Against Overstrain and wire service failures with the Dillon Dynamometer. Registers exact load in pounds on wire, messenger or guy strand, helps prevent devitalization of wires due to overstrain. Small, light, easy-to-use, it's a product of W. C. DILLON & CO., INC.



You'll Find It Easy to Carry, because this A. B. CHANCE CO. Lineman's Safety Cable Car can be collapsed, strapped or tied. Strong seat adjusts up and down by snaps and chains, and holes in chair frame allow snapping-on safety chain. Has handbrake, rubber-tread wheels.

GENUINE *Ironite* DROP WIRE

Genuine Ironite, that old dependable iron conductor drop wire, now comes to you new—really new—in every respect. It is years ahead in conductor and insulation.

Conductor is strong—extra strong—up to 250 lbs. breaking test on No. 18; protected by the modern process galvanizing—"flozine"—that provides a perfect, unbroken sheath.

Insulation is a new process rubber which clings to the conductor, maintains its flexibility and has long life. Protected by a new type of combined cotton and mineral fiber braid, stearine pitch and powdered mica finish (U.R.C. Specification).

And with all this superiority this *new* Genuine Ironite is priced so that limited budgets are easily met. Available in either twisted or parallel pair. Write for price bulletin No. 11.

PARAGON H. T. BRONZE DROP WIRE

A new Bronze conductor Drop Wire, meets every demand for a super quality "drop". Strong and ductile.

Available in Paragon rubber and braid insulation or in Paraprene insulation, in twisted or parallel pair. Write for price bulletin No. 11-B.

TELEPHONE DIVISION

Paragon Electric Company

TWO RIVERS, WISCONSIN

EDITORIAL

The Race With Increased Expenses

SINCE the beginning of World War II the telephone industry has been engaged in a race to increase its revenues to meet constantly increasing expenses. Statistics are dry reading, but those now available give us some idea of how a large section of the Independent telephone industry has made out in this race, at least until the end of 1947, which is the latest date for which the complete figures are now available.

Unfortunately these statistics show that this part of the telephone industry is behind in the race.

These are the figures of the Classes A and B Independent companies—that is, companies with more than $50,000 annual gross revenue—of which there were 281 companies in 1947, operating nearly 4,000,000 company-owned telephones.

For the year these companies averaged an earning of about 5% for fixed charges, dividends and surplus, on plant investment as shown by their books. This was certainly not an excessive profit.

For the year 1947 the operating expenses and taxes of these companies averaged $12.83 more per company-owned station than for 1940. Operating expenses went up $11.69 per station; taxes went up $1.14 per station.

These operating expenses included provision for depreciation. But that provision, for 1947, was 90c per station less than it had been for 1940. Operating expenses and taxes, therefore, actually increased $13.75 per station during the period.

A considerable number of exchange rate increases were made effective for these Class A and B companies during the period. From the number of such rate cases heard and decided between 1940 and 1948—and particularly in the later years of the period—it might be assumed that there had been a large increase in exchange revenues as the result of higher rates. The figures, show, however, that exchange rental revenue increased, during the period, only an average of $1.23 per station a year. There was an additional increase of 40c per station from miscellaneous revenue—total exchange revenue increase, $1.63 per station.

It was the heavy increase in toll revenue that met most of the increased expenses. Toll revenues practically doubled during the period, increasing from an average of $8.85 per station in 1940 to $17.65 in 1947.

Yet, even with this large increase in toll revenues, the average increase in revenues of these companies during the period was, per station, only $10.43, as compared with an increase of expenses and taxes of $13.75.

The result was that the net for fixed charges, dividends and surplus dropped from $9.26 per station in 1940 to $6.85 in 1947—a drop of $2.41 per average station.

Thus, Classes A and B Independent companies earned less, net, in 1947 than they did in 1940.

How much this gap has been closed by higher exchange rates in 1948 is still problematical, since the figures are not yet available. The important question is whether such increases will overcome further increase of expense.

It is clear that the telephone industry has not yet won the race with increasing expense.

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...are farm homes going modern? YES!

STROMBERG-CARLSON

Factory, General Offices: Rochester 3, N. Y.
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto

TELEPHONES, SWITCHBOARDS • SOUND EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL

...ESVEN TO THEIR TELEPHONES!

• Within the last year and a half, tens of thousands of Stromberg-Carlson Magneto Telephones have been put into service by independent American telephone companies. The new streamlined beauty of the cases appeals to rural subscribers whose taste in home furnishings is every bit as modern as that of their "city sisters." From the operating company's standpoint, the precision and ruggedness of the instruments make their selection an investment in long, trouble-free service. Satisfy your subscribers and your maintenance men with one, wise decision—to make your next magneto installations with Stromberg-Carlson telephones.

Stromberg-Carlson
No. 1248 Magneto Desk Set

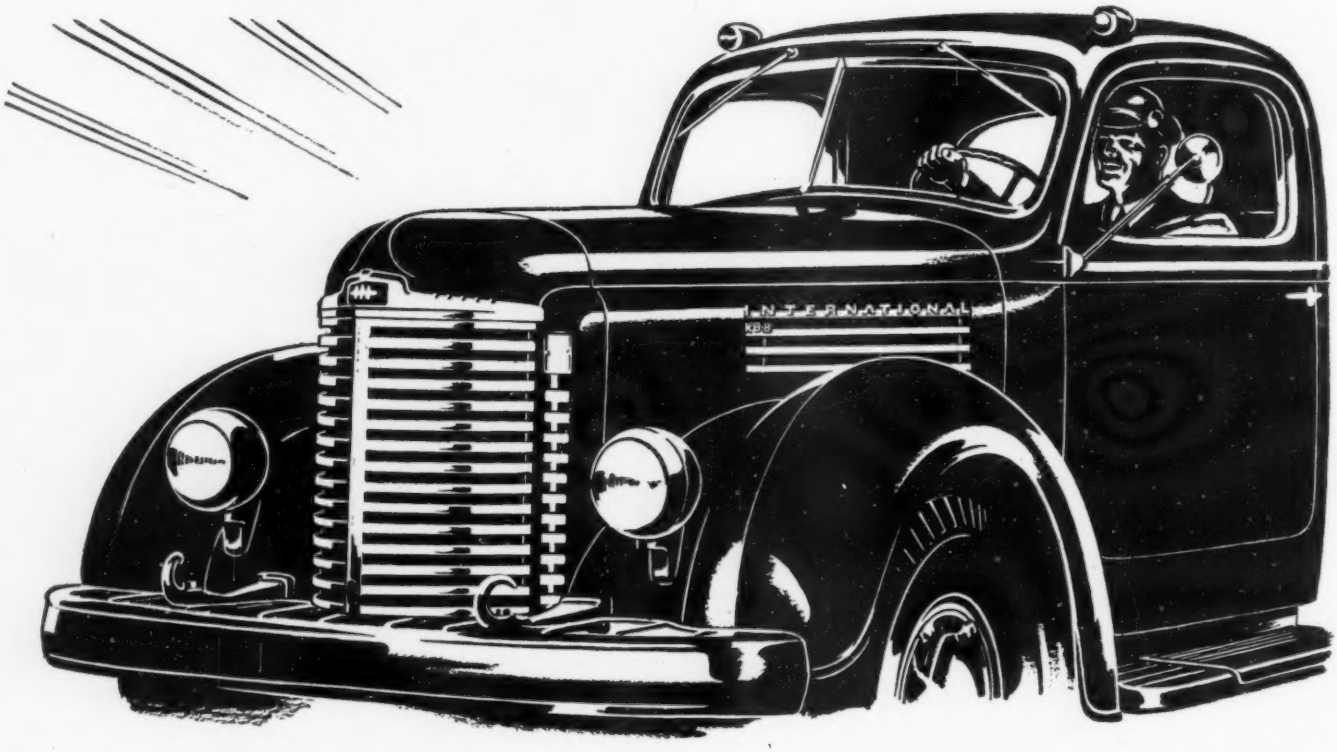
EXTRA! TELEPHONE PRICES REDUCED

See your Stromberg-Carlson representative for details.

RIGHT: No. 1258 Wall Telephone, companion to No. 1248 Desk Set.

...USTR...ERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISION

First in heavy-duty truck sales for 17 straight years!



America's most exacting truck buyers AGAIN give Internationals a vote of confidence!

Actual 1948 registration figures for new trucks of 16,001 pounds and greater GVW ratings show this nationwide preference for Internationals:

Internationals	**26.4%**
Truck "B"	**14.3%**
Truck "C"	**13.3%**

This marks the 17th successive year that Internationals have led in heavy-duty truck sales! Would men who buy on a basis of performance give a No. 1 rating to any truck unless it gave them a No. 1 value?

Outstanding value—right down the line! The same basic values that have kept Internationals first for 17 straight years in the heavy-duty field, are yours in any International Truck model. Heavy, light, or medium-duty, your International Truck is *all* truck. There's no compromise with passenger car design.

Trucks built to meet your requirements. Among the 22 basic International Truck models and 1,000 different truck combinations, there's a truck that's right for *your* job. In the range of gross weight ratings, from 4,400 to 90,000 pounds, you get the power, the frames, the axles you need for efficient hauling.

PLUS—the nation's largest exclusive truck service organization! 4,700 International Truck Dealers and 170 Company-owned Branches are ready with trained mechanics, precision-engineered replacement parts and low-cost rebuilt exchange units . . . ready to keep your International rolling at peak efficiency.

A truck transportation engineer is ready to help you! Call your nearest International Dealer or Branch, and find out how Internationals can step up the efficiency of your hauling. Trained International Truck transportation engineers will help you analyze your job—recommend a truck to lick it. If you're interested in profits, you'll call *soon!*

International Harvester Builds McCormick Farm Equipment . . . Farmall Tractors . . . Industrial Power Motor Trucks . . . Refrigerators and Freezers

Tune in James Melton and "Harvest of Stars," NBC, Sunday afternoons

INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY · CHICAGO

NEWS BRIEFS

Chinook, Mont., Cutover Complete; Press Praises Owner D. E. McPherson

Seven a. m., Sunday, May 1, marked another milestone in the long road of progress for the Chinook (Mont.) Telephone Company. At that hour Chinook's new system went into operation, according to announcement made by D. E. McPherson, Sr., president of the company.

Twenty-three years ago when Mr. McPherson purchased the company he promised the community continued improvements of the service. First to go were the magneto telephones which were replaced by the common battery service. As Chinook continued to grow the "new" system became crowded and plans were begun for a newer one. Then came the war and people had to double up on service in many cases so that telephones could be provided for others. Finally the recently installed system was selected to bring the very latest in dial telephone service to the community. Orders were placed but the post-war shortages of critical materials caused delays. Now, after three years of waiting, the dial system is in operation.

Other improvements made during the past two years include a complete renovation of the outside telephone line facilities. New cables have been installed to increase the number of lines available and all of the open wires will be removed to provide trouble free operation of the lines.

L. P. YOUNG (left) is new general traffic supt. of Lincoln (Neb.) T.&T. Co., succeeding C. C. DONLEY, who was recently named chief engineer. JOHN SPADY (right), succeeded Mr. Young as district manager, Hastings, Neb.

Gulf States Reports Construction Project Ahead of Schedule

Steady progress is reported by the Gulf States Telephone Company on the different phases of its installation of automatic telephone equipment for Athens, Tex.

According to the projected schedules for these phases, every item is well ahead of the planned installation. On the change-over of telephone instruments and the placement of dials on certain existing instruments, current estimates show this to be 75 per cent complete.

Construction crews under the supervision of Nolan Haywood, have been proceeding on the erection of additional pole lines, open wire and cable plant for the enlarged capacity of the Athens telephone system. This work will involve particularly the new business and residential areas where exisiting facilities are presently exhausted. The actual completion of this expansion on the outside will not permit installation of telephones for all applicants since the shortage of switchboard numbers controls that factor, but it will give considerable flexibility in moving telephones already assigned a switchboard number.

In a recent appearance before the Athens Rotary Club, Oscar Burton, vice-president and general manager, explained that the new switchboard installation will provide for nationwide operator toll dialing. Operator toll dialing will be initially in service between Athens and Tyler on all five direct circuits. It will be extended between Athens and Dallas on all eight direct circuits in mid-1950 when equipment of the Bell company is in service at Dallas.

Operator toll dialing will be gradually expanded over the nation by both Independent and Bell Telephone companies between important toll centers, with Dallas as the key city for Texas. With direct dialing connection with Dallas, Mr. Burton stated Athens will be "well ahead of other Texas cities in having this feature already in service for ready expansion to reach other states and cities."

New Exchange Planned For Roseville, Ky.

At a recent meeting of farmers of Roseville, Etoile, Dry Fork, Ky., plans were started to put in a new telephone exchange at Roseville with a 39 line board. Temporary officers elected to carry on the work are C. R. Borders, chairman; B. D. Bertram, vice chairman; Hubert Shipley, secretary; W. L. Adams and Witt Akers, members of the board.

$100,000 Improvement Program Completed at Breaux Bridge, La.

Earl "Teddy" Conrad, president and manager of the Breaux Bridge (La.) Telephone Co., Inc., recently completed a $100,000 improvement program when

he and his associates switched the Breaux Bridge exchange from magneto to automatic operation.

Mr. Conrad stated the Parks and Arnaudville, La., system were connected in with the system but the Cecelia unit will not be cutover to automatic operation until later.

In the project of installing the automatic system the company has invested over $100,000, including a new, modern brick building and new equipment throughout the system.

Charleston, Mo., Cutover To Automatic Operation

The new automatic system at Charleston, Mo., began to work at mid-night on Thursday, April 28. Les Pate, of the Southeast Missouri Telephone Company, announced that at mid-night of that date, hundreds of tiny switches clicked into place connecting all of the city's telephones to the new dial switching equipment.

For sometime prior to April 28, there had been practically two complete telephone systems in Charleston. During the past few months all telephones in the city and on rural lines radiating from the city have been changed to dial instruments though still connected to the old manual system. The new central office has been built, dial switching equipment installed, and outside cable and distributing plant has been built and terminated at the new building.

Mrs. Esther F. Young, 90-year old president of the Columbia (Pa.) Telephone Co., makes the first call following cutover of Columbia exchange to automatic operation. Surrounding Mrs. Young, are left to right: Col. W. J. Blank, Dr. J. D. Denney, John F. Hinkle, vice president; Charles E. Taylor, secretary-treasurer, all directors; Charles A. Carl, consultant engineer; James W. Staman, Sr., a director, and Henry Y. Smith, a director and general manager and also grandson of the president.

The cutover was the culmination and climax of a quarter million dollar improvement and expansion program for Charleston and vicinity. Including telephones added on rural lines radiating into the surrounding farm area, the telephone company has more than doubled the number of telephones which were in service in 1930.

The project received praise from the Charleston (Mo.) Democrat which stated "Embarking on, and the completion of this program, is evidence of the confidence that the company holds in the future of Charleston and assures it's friends and subscribers that the Southeast Missouri Telephone Company is one of the finest telephone systems in the country."

Minnesota Independent Telephone Companies Attend Conference on Rural Telephone Problems

Sixty-five officers and linemen representing fifteen rural telephone companies from Moose Lake, Barnum and Sandstone, Minn., and eight independent connecting companies located throughout Carlton, Pine and Aitkin counties, Minn., recently attended an all-day conference at Moose Lake for a general discussion regarding rural telephone problems. A. E. Anderson, manager of the Northwestern Bell Telephone Co., Moose Lake, Minn., R. S. Hanson, E. A. Kehret and P. H. Moran of Duluth conducted the meeting.

A demonstration of the proper way to build a telephone line was given by Mr. Kehret and Mr. Moran. Mr. Moran also demonstrated the type and kind of wire, proper splicing, tying and wire sag and the use of connectors. Through a specially constructed demonstration board they showed the effects of induction from electric lines to grounded and unbalanced lines and the effect of metallicizing and grounded lines and making proper transpositions to eliminate interference from high voltage lines.

Mr. Hanson spoke on organization and financing of rural telephone companies and pointed out that the main problem of building and maintaining rural telephone lines is a responsibility of the various rural companies, and assured his hearers that the telephone company is anxious to give advice and assistance to the rural lines served through the Barnum exchange. Mr. Hanson further stated the necessity of reorganizing certain rural companies, and also the necessity for these companies to have a maintenance charge sufficient to take care of proper maintenance of the lines. Mr. Hanson stated that it is the intention of the Northwestern Bell Telephone Co. to assist the rural companies by surveying the lines in company with the rural company officers and later attempting a meeting of all the company patrons to advise them as to how their lines can be fixed up so that a good, dependable service can be rendered whenever it is needed, at the least possible cost.

It was further pointed out that the telephone company would conduct schools for linemen in order to assist the linemen to recognize trouble and how to fix this trouble with the least possible effort. A 30-minute moving picture was shown on the building and maintaining of rural lines, which set forth rural line problems, causes of trouble, and the correct ways to remedy the situations.

Those attending represented companies having a total of 33 lines and 454 stations.

T. O. Berger Purchases Manilla, Iowa, Company

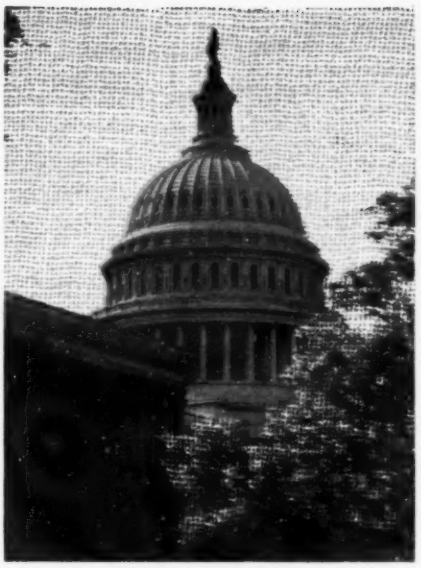
T. O. Berger of Minneapolis recently purchased the Central Telephone Co. exchanges, Manilla, Iowa. Mr. Berger owns other exchanges, at Montrose, S. D., and at Lawton, Iowa. The exchange will be known as the Manilla Telephone Co.

New Telephone Era For Winter Park, Fla.

"The most useless thing in Winter Park is the dial on the telephone," subscribers of the Winter Park (Fla.) Tel. Co. said all Fall, all Winter, all Spring.

But on May 14, following a two minute blackout of telephone service; 1,200 wires were cut, 1,200 small pieces of pasteboard were pulled out—and when

(*Please turn to page* 59)



Washington Bureau REPORTS

BY ROLAND DAVIES and FRED HENCK

A SHOWDOWN on the Poage bill to permit rural telephone loans by the Rural Electrification Administration—between sponsors of the bill and members of the House who believe the measure should be amended in several important particulars—is expected to come by the end of June.

The likelihood of a definite vote on the bill came when Chairman Harold D. Cooley of the House Agriculture Committee submitted a resolution which in effect seeks to discharge the Rules Committee from further consideration of the bill. Chairman Cooley's move was made after the Rules Committee again refused to issue a rule on the bill. Chairman Cooley earlier had told TELECOMMUNICATIONS REPORTS flatly that he would file the discharge resolution if the Committee did not act at its next meeting. The resolution was filed immediately after the Rules Committee passed over the Poage bill at its meeting Wednesday, June 1.

Rules Committee Chairman Adolph J. Sabath (D., Ill.) said after the meetings that the group passed over the bill for three reasons—its 2% interest rate, when the money which the government would lend would cost it up to 4% to obtain; the prospect that the loans would lead to duplicate or parallel telephone systems; and the likelihood that small, debt-ridden companies could refinance their obligations through the loans and thus "unload" them on the taxpayers.

Although there is no real basis for forecasting House action on the Cooley resolution, there have been strong indications that generally administration Democrats (as contrasted with most of those from southern states) are not too strong for the bill. Certainly Rules Committee Chairman Sabath, in charge of clearing the administration program for House floor action, has indicated no regard for it in its present form. Since many southern Democrats and Republicans probably will vote against it in the interests of governmental economy, there appears to be an excellent prospect that the measure will not be approved by the first session of the 81st Congress.

Under the new House rules, the first date on which Chairman Cooley can offer his resolution would be Monday, June 27. If it is approved —by a simple majority vote—it would then be in order to take up the Poage bill immediately. There would be two hours' general debate, and the measure then would be open to amendments. Of course, if the Cooley resolution is defeated, the question would still be up to the Rules Committee, which is unlikely to grant a rule later.

Labor

THE CLIMAX to probably the biggest story in the history of telephone workers' unions was due as TELEPHONE ENGINEER & MANAGEMENT went to press—the formal amalgamation of the Communications Workers of America with the CIO Telephone Workers Organizing Committee, and granting to CWA of a permanent international charter (to replace the present interim document) as the CIO union in the telephone field.

With the TWOC and the CWA slated to hold consecutive conventions in Chicago, approval of the recommendations of the joint affiliation committee (on merger mechanics and constitutional provisions) was to be the first order of business at each session. Given CWA endorsement, as expected, the unions were then to swing into a joint conclave to elect officers and discuss such matters as the 1949 bargaining campaign.

One evidence that agreement to the affiliation committee's proposals was virtually certain was the TWOC schedule. The original CIO telephone group was to meet over a weekend to put its stamp of approval on the affiliation plans and set up machinery for its formal dissolution. It was assumed also that the officers of the two unions have reached an accord on their posts in the new union. It was felt that the leaders of two large groups, the Association of Communications Equipment Workers (Western Electric installers) and the American Union of Telephone Workers (A. T. & T. Long Lines), both of which moved into the CIO to form the TWOC nucleus two years ago when the former National Federation of Telephone Workers (now CWA) became "one national union," would not be disposed to settle for minor assignments in the merged union.

A CWA announcement prior to the convention said that the convention "will develop the unions' overall 1949 collective bargaining program and objectives, including wage matters, vacations, and pensions. It will consider and act on resolutions concerning dial conversion and stabilization of employment in the telephone industry, integration into CIO activities, the Taft-Hartley Law, housing, public health insurance, wage-hour law matters, Social Security changes, aid-to-education, and state anti-strike laws. It will establish union legislative objectives and a political action program. Overall organizing objectives will be established and implemented."

Indicative that the telephone union has moved into the "big leagues" was the list of convention speakers. They include Secretary of Labor Maurice Tobin, Senator Hubert H. Humphrey (D., Minn.), CIO President Philip Murray, and John R. Steelman, Assistant to President Truman. Last year, of course, President Truman addressed the CWA convention at Spokane, Wash., during his campaign tour.

Although this column seldom makes "predictions of things to come," preferring to report more concrete news and trends, the recent events have upheld almost completely the forecast in this space less than a year ago, at a time when the CIO and CWA were on none too friendly terms. The

only probable error in the forecast was the offhand comment that the CWA would become the CIO United Telephone Workers — which, of course, is the cornerstone of the current disagreement between the Bell System companies and the CWA as to whether significant changes have occurred in the CWA as the result of its move to affiliate with the CIO.

Retaining the CWA name, as the merged union is expected to do, is part of the union's view that its structure has not been significantly altered, and that there is no reason for the workers it represents to again signify their choice for a collective bargaining representative. Bell System companies, in about 36 petitions to the National Labor Relations Board, have raised the question that the situation requires proof of majority representation, generally through collective bargaining elections.

The only definitive action on the NLRB petitions thus far has been the action of the Michigan field examiner who dismissed the three petitions filed by the Michigan Bell Telephone Co. Ultimately, however, the NLRB members themselves no doubt will have to decide the issue—probably on a case-by-case basis, since the circumstances differ in almost every instance.

Rates

ONE OF the most effective and cogent statements on the importance of adequate rates to telephone companies, particularly in the face of continued heavy service demands and need for additional capital to finance plant construction and improvement, has been issued by Carl Whitmore, President of the New York Telephone Co., the nation's largest telephone company from the standpoint of revenues.

Mr. Whitmore, in a discussion of his company's situation after the New York Public Service Commission approved interim rate increases estimated to produce $26 million a year, to provide emergency relief while it is considering the New York company's plea for $49 million additional permanent rates, had this to say:

"There is only a small margin between insufficient earnings that can stagnate our business and adequate earnings which will enable us to attract the necessary capital to continue major construction activities with attendant high telephone employment that the needs of the public demand. This small margin amounts to only a few cents a day per telephone, yet it controls the future of the telephone industry and its full usefulness to the people of New York state."

Meanwhile, courts are continuing to show greater appreciation of the economic facts of life for telephone companies than do some regulatory commissions. The Massachusetts Supreme Court has in effect taken jurisdiction over the rate request of the New England Telephone & Telegraph Co. in that state, granting the company authority to put its full rate request into effect on an interim basis and appointing one of its members as a master to make a report on permanent rates. The master's report is then subject to action by the full bench of the court.

NARUC To Study Toll Rates

A JOINT subcommittee of the National Association of Railroad and Utilities Commissioners and the FCC, set up to make a complete fact-finding study of message toll telephone rates and services, both interstate and intrastate, has completed its organization and has mapped out an agenda of subjects on which data will be sought.

The group is understood to be the first body ever established to conduct a joint state-federal survey of long distance rates and services. Heretofore such studies have been conducted by the FCC (interstate) and the affected state commissions (intrastate).

No decisions were made at the meeting in Washington in early June except on the different types of data to be sought, it was reliably understood. The telephone companies, it is known, are planning to cooperate fully in the supplying of all the requested data which can possibly be furnished and formulated.

Representatives both of the Bell System and the U. S. Independent Telephone Association participated in the latter phases of the Washington meeting, and were informed of the subcommittee's deliberations on the types of data which will be requested.

It will take at least a year for the NARUC-FCC subcommittee to complete its full studies, it was authoritatively estimated. The subcommittee will hold its next meeting in New York in September, it is planned. At that time the subcommittee will be able to review the informational material furnished by the Bell System and the Independents; develop any new or other avenues of fact-finding and information-seeking; and outline plans for the future.

Major Aim of NARUC Studies

A MAJOR aim of the subcommittee's studies will be to formulate recommendations to the state commissions and the FCC to minimize to the fullest extent possible the differences between interstate and intrastate toll rates and services in their regulatory functions.

The subcommittee will endeavor to assemble for the use of the state and federal commissions in one report the history and background of message telephone toll rate structures and services, the present situation, the trend in rates, the changes in the classes of message toll services, and particularly the many improvements in the art of long-distance telephony, such as operator toll dialing, toll ticketing, coaxial cable and radio relay transmission, and the automatic message accounting system. Of course, the incorporation of new developments into the nationwide telephone plant requires huge expenditures of capital.

The studies will embrace the message toll service and will not cover the foreign exchange services, private line, or such services as broadcast-television program transmission and teletypewriter exchange.—THE END.

Coming Conventions

Oregon Independent Telephone Association and *Washington Independent Telephone Association*, Davenport Hotel, Spokane, Wash., June 17-18.

California Independent Telephone Association, Biltmore Hotel, Los Angeles, June 23-24.

Rocky Mountain Telephone Association, Newhouse Hotel, Salt Lake City, Utah, Sept. 22-23.

Michigan Independent Telephone Association, Olds Hotel, Lansing, Sept. 22-23.

United States Independent Telephone Association, Stevens Hotel, Chicago, October 10, 11, 12.

South Dakota Telephone Association, Cataract Hotel, Sioux Falls, Nov. 9-10.

Missouri Telephone Association, Governor Hotel, Jefferson City, Mo., November 14-15.

Fig. 1—Tree growth is a serious cost problem to pole line companies.

Fig. 2—The bulldozer takes out roots and all; offers satisfactory solution to tree removal problem.

NEW and IMPROVED Methods Provide

Economical Tree Growth Control

By B. C. Burden

Telephone Engineer, Lincoln, Nebraska

General

THE CONTROL of shrub and tree growth under pole lines has become an increasingly serious problem in recent years. In many areas it is difficult to earn on minor toll and rural lines largely because of the high annual labor expense of tree trimming. The problem has been aggravated in many sections the past few years by an unusually heavy tree growth because of abnormally high annual rainfall.

The problem is made still more serious because of the current need for a good electrical balance on telephone lines if power noise is to kept within limits. Virtually every roadway now carries (or will) a rural power line of high inductive influence. These several factors emphasize the need for new and improved tree control methods which will permit better control at lower cost. Studies recently made of the tree control problem by some of the larger companies have resulted in the following conclusions:

(1) Along many leads the most satisfactory long term solution is the entire removal of all tree and shrub growth by bulldozing trees and roots clean and encouraging the adjacent land owners to plant crops or soil erosion grasses in the cleared area under the lead.

(2) Greater use should be made of labor saving devices such as chain saws, pneumatic tree trimmers, aerial ladders, etc., to permit the more rapid and economical annual trimming or removal of trees which can not be more economically handled by bulldozing or chemical treatment.

(3) For many tree and brush situations chemical control, particular in the case of low shrubs, plum thickets, etc., offers an excellent answer to the tree control problem.

(4) No single method or practice will give the best long term solution and a combination of the several practices mentioned above will usually be required. Some idea of the high annual cost of tree trimming is shown by the experience of one company operating over a hundred exchanges. In a single year the total tree trimming cost for this company has run as high as $25,000. This figure accounts for only what might be termed *"light trimming."*

Bulldozer Treatment

THE USE of bulldozers for removing trees along the right-of-way is nothing new, but their extensive use for tree removal purposes has not been prevalent, at least in the middle west, until recent years. It has now been found that for heavy, dense hedge type trees and bushes along important toll and exchange leads, that bulldozing offers an economical and highly satisfactory solution when considered on a long term basis.

Bulldozing is generally handled by a local contractor who furnishes the equipment and operator. He contracts to remove all growth along specified leads at a definite contract price. Current costs for complete removal of trees by this means, vary from $20.00 per span down to as low as $5.00 depending on the extent and type of tree growth, distance between jobs, etc. Usually the telephone company talks with the farm owners and makes arrangements with them whereby they permit the bulldozer contractor to remove all trees along certain specified areas under the telephone lead.

The farmer, in return for having the trees removed, agrees to take out his fence (if any) and to restore it without charge to the telephone company or the contractor. In most cases the bulldozer operator after dozing out the tree growth shoves the brush back into the field and the farmer takes care of burning or otherwise disposing of it. In some cases the bulldozer operator agrees

to shove the removed brush into nearby ditches for soil erosion purposes.

In some cases it is necessary to make extra concessions to the farmer in the form of agreeing to remove and replace the fence and to do certain dozing work along the right-of-way for the benefit of the farmer. However, most farmers have proven highly cooperative and very agreeable to this tree removal plan and do not attempt to drive hard bargains. The fact they can plant their crops clear up to the fence line with no stunting due to trees sapping the soil is one of the principal arguments used in soliciting farmers' permission for this type of work.

Bulldozing Arrangements

EVEN THOUGH the telephone company usually does the intitial negotiating with the farmer, some companies prefer to have the actual contractual relationship to be between the farmer and the bulldozer operator. The telephone company pays the farmer who then pays the bulldozer operator. This eliminates certain administrative problems that would result were the dozer operator to work direct for the telephone company. Another satisfactory arrangement, where a reputable contractor is involved, is for the contractor to contact the farmer and do the necessary "selling" job and make all arrangements for the removal of the trees along the telephone lead abutting the farmers land. The telephone company appears in the picture only to the exient of agreeing to the contract price and turning this amount of money over to the farmer who makes payment direct to the contractor.

The use of special tools, particularly those of the motor driven

Fig. 3—Types of growth for which bulldozing seems a good answer.

type to enable greater productive effort for a given amount of labor expended offers another solution to the tree problem. Typical of labor saving tools which can be used to advantage by telephone companies are the one and two-man *chain saws*. These saws, which are available in both an electric and gasoline driven type, will greatly speed up tree removal work where trees of large size are involved. The chain saw is normally not considered suitable for brush and small tree removal work because of its tendency to "move along the cut" unless the *butting block* is pressed firmly against tree being cut. But by a slight modification the chain saw can be used to advantage on even small brush. This is accomplished by equipping the engine end of the saw with a rigid spike "anchor" about six inches long. This is pushed into the ground and holds the saw firmly while the opposite end is swung in an arc thus moving the saw through the brush.

A chain saw not only enables large trees to be cut down in a hurry but they can also be quickly cut up into convenient lengths for easy removal. Farmers will usually permit the removal of large trees provided the telephone company will agree to cut these up into six foot lengths so that the farmer can more easily move them to his wood pile.

Types of Chain Saws

CHAIN SAWS are available in both electric and gas engine types. The electric chain saw is powered by a 180-cycle 230-volt portable generating plant. The use of a-c power at three times normal fre-

Fig. 4—Farmers cultivation under lead insures freedom from future growth.

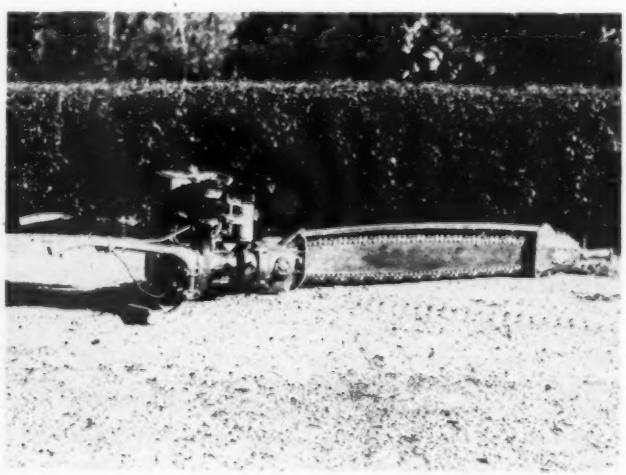


Fig. 5—The chain saw will cut off a 3-foot diameter tree in four minutes or less.

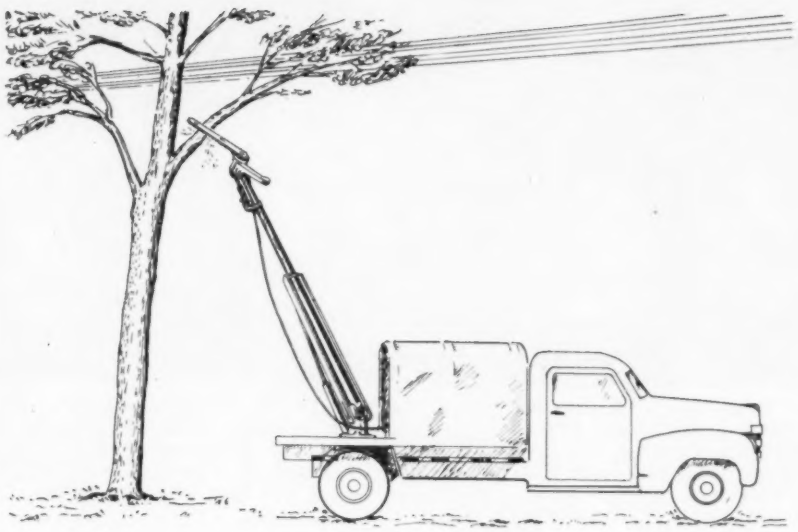


Fig. 6—Special tree trimming truck using small chain saw on extension arm. This method would present some hazards and would require safeguards to avoid damages to equipment and accidents to operators.

quency enables the use of a much smaller and lighter weight motor. The electric chain saws are light in weight and the one man saw is capable of handling trees up to 36" in diameter. Exceptionally light weight models are available for cutting limbs.

The generating plants are also equipped with 110-volt d-c windings for operating flood lights, electric drills, etc. Fig. 5-1 shows several models of electric chain saws.

The gas engine driven saws are powered usually by single cylinder 2-cycle high speed engines. By turning at high speed these saws are capable of generating a surprisingly large amount of power for their light weight. They are made in both one and two man sizes and in standard lengths of 24, 36 and 48 inches. The several saws shown in Fig. 5-2 are illustrative of the many excellent units now available.

Limited use has been made of boom mounted chain saws by commercial tree trimming companies. Fig. 6 shows an artist's sketch of a chain saw mounted on a long hydraulic arm. The practical use of an arrangement similar to that shown would of course require proper safe guards and safety precautions to minimize the hazards inherent to a unit of this type.

Pneumatic Trimmers and Aerial Ladders

OTHER TOOLS which should aid materially in reducing tree trimming costs along the right-of way is the pneumatic tree pruner. This unit which is similar to the orthodox extension type manual trimmer, reduces the amount of effort required to speed up operations by the use of a pneumatic operating cylinder. However, any type trimmer requiring the use of a long extension arm which must be operated from the ground is necessarily slow and cumbersome to use. Some companies have found that truck mounted aerial ladders which enable the workmen to use short trimmers, electric saws, etc. represent the best way to cut down on tree trimming labor requirements. Truck mounted trimmers are particularly effective in city plant.

Limited use has been made of the ordinary 6 or 7 inch carpenter's type electric motor hand saw for pruning operations on limbs up to 1½ inch in size. A 2500-watt portable 110-volt 60-cycle power plant is usually used to power these saws. For working in small brush using hand methods, the brush hook as shown in Figure 7 is faster and easier to use than the regular axe.

Chemical Control Of Tree Growth

THE USE of chemicals to control tree growth along pole line right-of-way is relatively new. Although experimental work has been going for a number of years with various chemicals such as arsenic, chlorates, thiocyanantes and other similar "killers" it has been only in the past few years that the attention has been focused on the effectiveness of chemicals for killing or retarding tree growth. The writer believes the use of chemical techniques for tree control offers a most promising solution for bringing tree trimming costs down.

The chemical control of tree growth is based on use of chemicals which are sprayed on the green foliage and which are absorbed by the foliage and pass through the stem into the branch and down the trunk of the tree into the root structure. Killing action takes place completely through the root structure provided the proper chemical in adequate quantity is used. By careful adjustment of the amount of chemical and point of application it is even feasible to "crown top" heavy tree growth.

The control of tree growth by the means of chemicals as compared to ordinary cutting methods offers the distinct advantage of reducing the amount of labor hours required because of the ease with which chemicals can normally be sprayed on tree growth along the right-of-way.

Disadvantages Charged Against Spray Method

THE PRINCIPAL disadvantages that have so far been charged against the spray method are:

(1.) It is often difficult to apply the spray to roadside tree and shrub growth without getting some of it on adjacent crops or shade trees resulting in complaints and possible damage suits from adjoining property owners. However, a leading tree control company claims this will cause no trouble if Ammate is used.

(2.) No single chemical seems to be completely effective for all types of trees and shrubs and some technical skill is required to select the proper chemical and treatment for each tree clearance job.

(*Please turn to page* 60)

Fig. 7—The bush hook beats an axe for fast removal of small brush.

Those who attended the Kellogg Switchboard & Supply Company's recent course in Dial Equipment Training given by D. B. Robison (standing) were, left to right: Ralph Smith, Greenville, Tex., Joseph Lape, Nappanee, Ind., Lee Mendenhall Anahuac, Tex., William Connolly, Anchorage, Alaska, G. F. Johnson, Seymour, Ind., William Guyn, Oak Grove, La., James Roe, Smackover, Ark., and Robert Stockdale, Carmichael, Pa.

***WILLIAM J. MEINERT** has been transferred to the sales force of Hubbard & Co. covering the Ohio and Southeastern Michigan territory, which until recently, was served by **LEONARD P. SCHAFER**. Bill is backed by 25 years of experience with the Hubbard company.*

Officers from the 5th Army Headquarters in Chicago extend greetings to Capt. L. E. Savage (ORC), commanding officer of the new Automatic Electric Company's Signal Reserve Unit on the occasion of its opening meeting. Shown left to right are: Major H. E. Donovan, representing Chief Signal Officer, 5th Army; Major L. F. Kruse, Unit Instructor, representing Senior Army Instructor, ORC, 5th Army Headquarters; Captain L. E. Savage, (ORC), Commanding Officer of 822nd Signal Intallation Company; Major General James A. Code (Ret.), chief executive, Gary Group; C. S. Cadwell, president, Automatic Electric Company.

***MAJOR COUNT I. G. DU MONCEAU DE BERGENDAL**, Belgian Military and Air Attache congratulates **MAJOR GENERAL JAMES A. CODE, JR.**, in Washington on receiving the Order of the Crown of Belgium in the grade of Commander.*

*The Electric Products Co. of Cleveland, Ohio, recently appointed **E. LOWE McINTYRE, JR.** as assistant sales manager in charge of new market developments. Mr. McIntyre will be located at Headquarters in Cleveland.*

Fig. 3—Using the Leco Cable Flasher

High Voltage Breakdown Equipment

Facilitates Location Of Cable Faults

By J. S. Reed

Lincoln T. & T. Co.,
Lincoln, Neb.

IT IS A well known fact that high resistance wet faults can often be broken down by applying a fairly high potential to the affected cable pair. This reduces the resistance of the fault to a sufficiently low value for accurate location with a cable splicer's tone test set.

When this idea was broached, it was opposed as being unsafe and impracticable. Indeed where use was made of an A-C or a rectified A-C potential, such as that obtained from a radio power supply, results were far from satisfactory. It has, however, been demonstrated that radio B batteries producing up to 675 volts can be safely and successfully utilized for the voltage breakdown source. At the present time a voltage of 450 is employed with a maximum of 675 volts provided when necessary by connecting supplementary battery of approximately 225 volts.

This breakdown equipment should be used in those cases where the fault resistance is too high to pass the testing current from the tone test set (usually over 2,000 ohms). It is possible to breakdown faults having as high as 50,000 ohms. If the fault resistance is very high, the fault may dry out and disappear, when the high voltage is applied.

Description Of The Breakdown Test Set

The breakdown set consists of ten 45-volt B batteries, a special arc-breaking switch, a volt-ohmmeter with selector switch, ohms adjuster, push-button, and a "Twist Lock" outlet receptacle, all assembled in a wood case. The external appearance of this set is illustrated in Figure 1 and the circuit diagram of the set is shown in Figure 2. Figure 3 shows the breakdown set being used to break down a fault in an aerial cable pair.

Although heavy duty B batteries will give the best results, it is more satisfactory to use the so-called portable B batteries, because of their lighter weight. The RCA VSO-12 equivalent batteries have sufficient capacity for the purpose, without being too heavy for one man to carry. They will not last as long as the heavy duty type, but they will perform quite satisfactorily and can be easily replaced, as they are of a standard type, much in demand for portable radios.

The ten 45-volt batteries, when connected together in series, produce 450 to 465 volts. The battery circuit is closed by means of an arc-breaking switch through the outlet receptacle. The switch contacts are held normally open by a spring and are non-locking. Pushing down on the switch button closes the contacts. If the fault breaks

(*Please turn to page* 38)

LEICH **900** MAGNETO TELEPHONE

A New

- **IT'S ACTUALLY A COMMON BATTERY TELEPHONE DESIGNED TO GIVE MAGNETO SERVICE**
- **REMOVE THE GENERATOR AND YOU HAVE A COMPLETE COMMON BATTERY TELEPHONE**
- **SAME TELEPHONE IS USED FOR WALL OR DESK MODEL**
- **EXCELLENT TRANSMISSION, RECEPTION AND RINGING FOR EVERY LINE CONNECTION**

Here is the most practical magneto telephone you have ever seen!

Not only is it more glamorous, more attractive, less bulky — but it offers exclusive operating, service and engineering features never before available in one telephone instrument.

This Leich Magneto Telephone meets every installation requirement. With it, you can offer your subscribers their choice of wall or desk installation, for this one telephone works either way, *without any changes or additions whatsoever.*

The easy conversion to common battery service is another feature that makes this new Leich magneto telephone a sound investment. All that's necessary to convert it into a regular common battery telephone is to remove the Alnico generator and generator face plate, add a dial blank and change a few wires. All the other parts, even including the case, remain the same.

If the magneto exchange is converted to dial, it's a simple matter to add a dial. And, both the common battery manual or dial telephones have the profitable, time and money saving feature of serving as wall or desk models.

New high standards of magneto service are yours with this Leich magneto handset. Excellent transmission and reception, reliable ringing even on long, heavily-loaded rural lines, a more conviently located, easy to turn generator crank, dependable long-life service are operating advantages that will pay dividends.

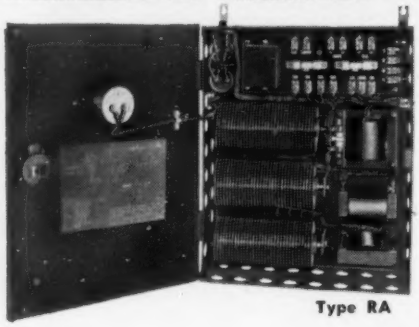
Actually, this is a universal telephone . . . an investment that's *always* good. *Leich Sales Corporation, 427 W. Randolph St., Chicago 6, Illinois.*

ew Standard of magneto service

ACTUAL SIZE COMPLETE EXCEPT FOR BATTERIES

LEICH MANUFACTURERS OF TELEPHONES, SWITCHBOARDS & RELATED APPARATUS SINCE 190

Dependable
DC POWER SUPPLY
for Lamp Signal and
Automatic Switchboards
LOW IN FIRST COST!
LOW IN OPERATING COST!
ELECTROX
CONSTANT VOLTAGE
BATTERY ELIMINATORS



Type RA

MANUFACTURED to the exacting standards of the telephone industry, the Type RA ELECTROX Constant Voltage Battery Eliminator will deliver direct current of suitable smoothness for operating lamp signal and automatic switchboards without the use of batteries.

The Type RA ELECTROX delivers a practically constant output voltage irrespective of current drain up to the maximum output of the rectifier. Constant voltage output is obtained automatically — requires no manual adjustments.

Housed in a ventilated steel wall mount cabinet, the Type RA ELECTROX eliminator requires no attention or maintenance. Simply plug it into your AC power supply and forget it. Available in numerous capacities to supply required DC voltage, with or without power-off relay.

For complete information on the Type RA and other ELECTROX eliminators for the telephone industry, write for Bulletin 1462, or see your Jobber.

RECTIFIER DIVISION
The SCHAUER MACHINE COMPANY
2059 Reading Road, Cincinnati 2, Ohio

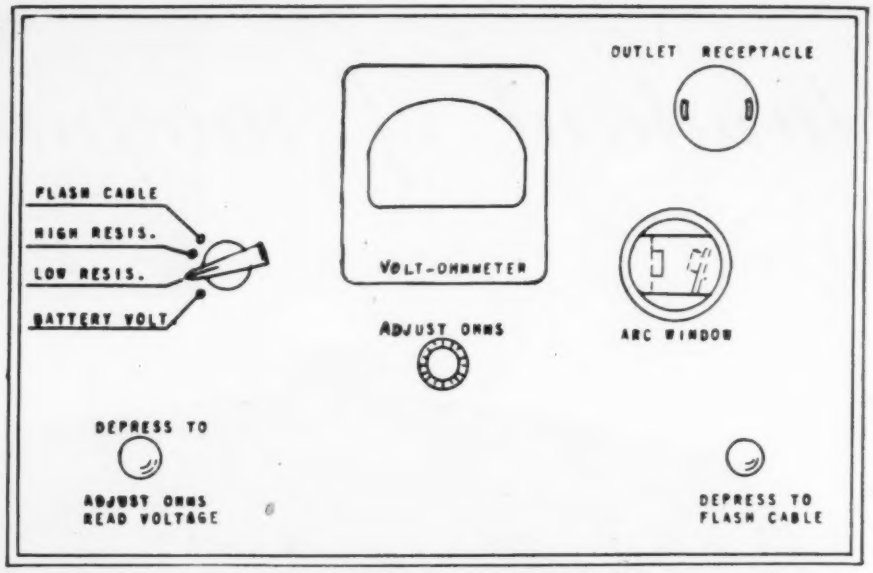


Fig. 1—Top panel layout of breakdown set (Leco Cable Flasher).

down at this moment, removing pressure on the button will cause the contacts to snap open. This snap action extinguishes the arc that forms.

A round window in the top of the case, designated "Arc Window," shows the contacts of the arc-breaking switch. By this means the sparking or arcing can be observed.

The meter on the breakdown set indicates the open circuit voltage of the battery or the resistance of the fault required. Operating the selector switch to "Battery Voltage" and depressing the left hand push-button on the panel connects the meter across the battery.

When it is desired to check the resistance of the fault, after the breakdown attempt, the selector switch is turned to the "Low Resistance" position. This connects the low resistance section of the meter across the cable pair. If this position results in an unsatisfactory reading, the high resistance position may be used.

For connecting the set to the cable pair terminals, a twenty-five foot cord with twist-lock plug on one end and test clips on the other end, is used. (The purpose of using a twist-lock device is to insure good contact at the connection to the set and to prevent accidental disconnection during test.)

Need For Caution In Conducting Breakdown Tests

Because of the high voltage produced by the breakdown set, it is necessary to exercise care in using the equipment. Even though only B batteries are used, it is possible to get a nasty and oftentimes dangerous shock through contact with the test clips of the cord or with the cable pair conductors during operation of the breakdown equipment.

The equipment itself is sufficiently well insulated and covered to prevent possibility of shock, unless one connects himself directly across the test clips.

All bridged apparatus must be removed from the cable pairs that are in trouble. This includes jumper wires at the main frame and the drops connected to these pairs. A red warning tag, such as that illustrated in Figure 4, should be attached to one of the terminal lugs of the pair. If the test is being made at the cable pair end, the tag should be attached

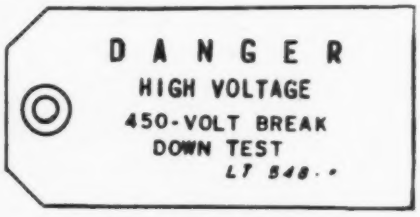


Fig. 4—Warning tag.

to one of the pair terminal lugs on the main frame in the central office. If the test is at the office end, the pair in the cable terminal should be tagged in the same way. If the pair under test appears in other terminals, this pair should be tagged in the same way at its appearance in the cable terminal multiple, whether the test is made at the office end or at the other terminal. This tag will warn other workmen, who might otherwise be unaware of the presence on the cable pair.

After the jumpers at the main frame and the drops at the cable terminals, in which the faulty pairs appear, have been disconnected and

the red warning tags have been attached at the proper points, the test is ready to be made. Be sure to follow the sequence of operations described below.

The test cord is connected to the terminal posts or lugs of the faulty pair as shown in Figure 5. The cord is then plugged into the outlet receptacle on the set.

After everyone is in the clear, the selector switch is set to "Flash Cable," and the arc breaking switch momentarily operated. The arc window is watched in the meanwhile to note if arcing or sparking occurs. The switch is operated continuously until breakdown occurs. This operation must then be immediately stopped, in order to prevent draining the battery by a heavy discharge.

After breakdown occurs, the breakdown switch should be allowed to return to its normal position and then the selector switch operated to the "Low Resistance" position. If the reading is 2,000 ohms or less and does not tend to rise above this value, the tone test equipment can be connected in place of the breakdown set and the fault searched for with an exploring coil in the standard manner.

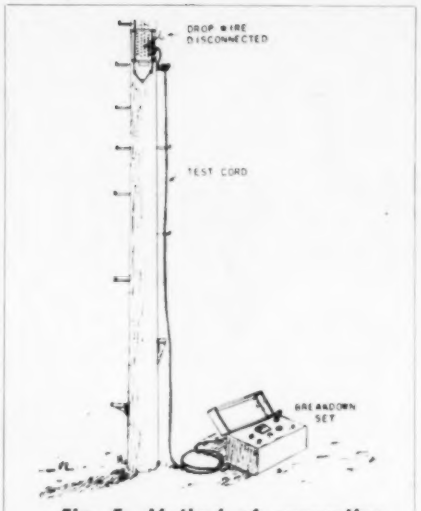


Fig. 5—Method of connecting breakdown equipment to cable pair at terminal pole.

If the fault resistance is still too high, the breakdown procedure should be repeated until the resistance is lowered to 2,000 ohms or less. Sometimes no arcing occurs and all that can be noted are sparks. The fault resistance should be checked in this event, as it may be low enough to pass tone current anyway.

Where a number of pairs have gone bad, as in a wet cable, the fault resistance of each of these pairs is measured with an ohmmeter and the pair with the lowest fault resistance is chosen for the breakdown attempt.

Usually, the breakdown voltage is applied across the conductors of the faulty pair, as when a high resistance short occurs. If a cross or ground is involved, the set should be connected

(*Please turn to page* 63)

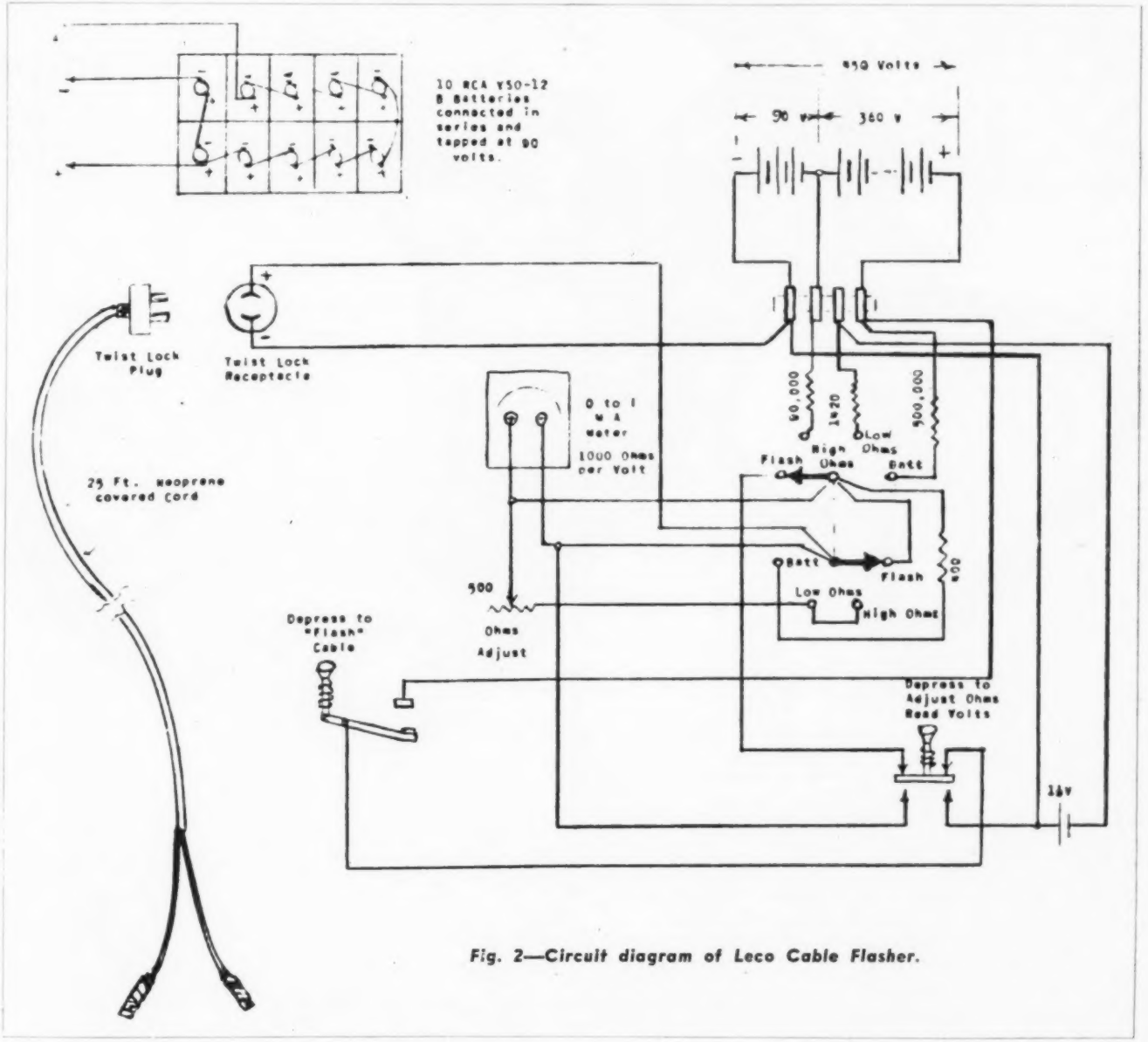


Fig. 2—Circuit diagram of Leco Cable Flasher.

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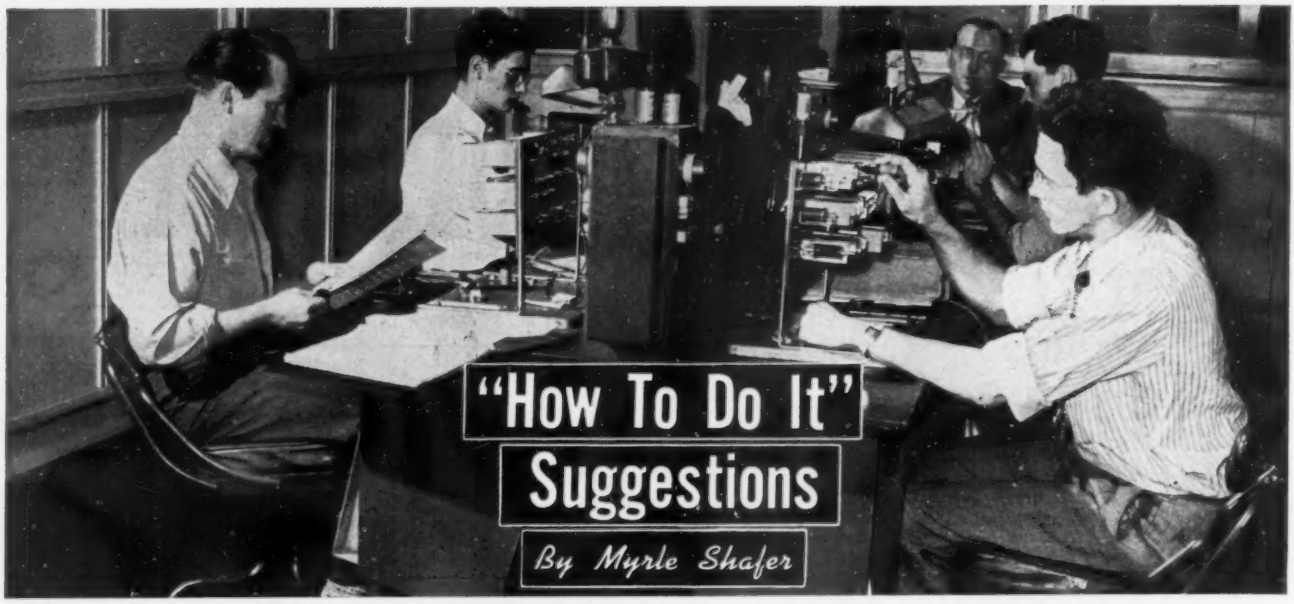

"How To Do It" Suggestions

By Myrle Shafer

New Control Device Developed For Use With Trailers

A NEW, self-contained, hydraulically-operated surge-control device has been designed for use with 11, 12, and 14-inch mechanical brakes on all types of two and four-wheel trailers having capacities up to 5 tons. When the towing vehicle slows or stops, a hydraulic cylinder in this new unit simultaneously and automatically applies an equal braking action to the trailer to bring it to a smooth, positive stop, and at the same time eliminate the jolting "over-ride" action common in trailer towing. (*See Fig.* 1.)

The surge-control unit is designed for use with any two or four wheel trailer for transporting compressors, generators, concrete mixers, floodlights, fire-fighting equipment, public utility service apparatus, and other special or all-purpose portable equipment.

Any one of three different hitches (Ball and Socket, Lunette or Clevis) can be supplied with the "Titanic" surge-control unit to permit attachment to automobiles, light pick-up trucks, and light or heavy duty construction and maintenance vehicles. A complete unit consists of the hitch, hydraulic cylinder and mounting bolts, manual brake for parking, breakaway safety cable with snap connector, and brake equalizer and cable. This new device requires no special attachments on the towing vehicle. The 1⅜ inch travel of the hydraulic ram automatically applies braking, when needed. The surge-control device releases the trailer brakes immediately when the towing vehicle pulls away, eliminating all tendency to drag.

An added safety feature is the breakaway cable, which actuates the manual parking brake lever to lock the trailer brakes, in the event of accidental unhitching.

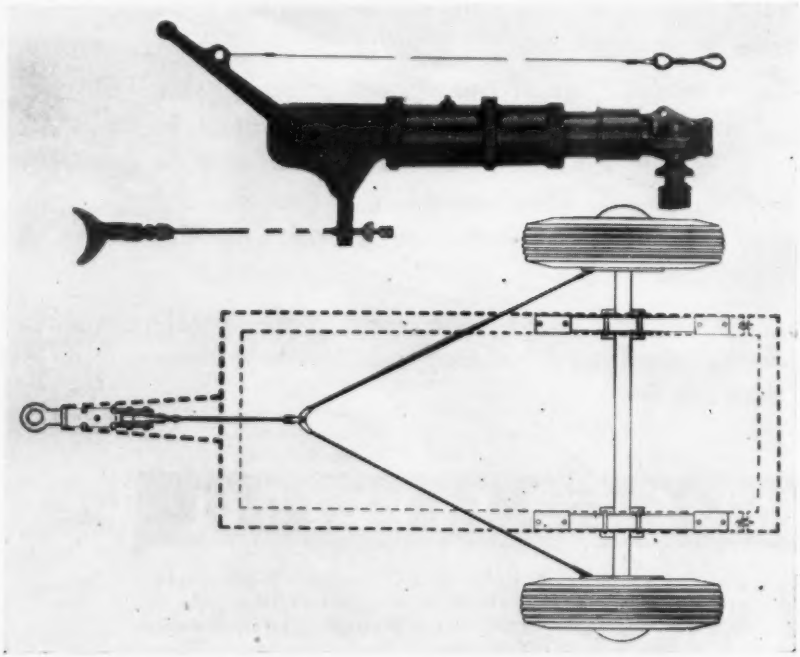

Fig. 1—"Titanic" hydraulic surge-control device. Upper—Surge-control units. Lower—Showing method of mounting on a two-wheel trailer.

"Mighty Midget" Puller— A Mighty Handy Tool

THE RATCHET and chain hoist, familiarly known as a coffing hoist, has long been a favorite tool with telephone construction and maintenance men for lifting ad pulling operations. Such hoists are extremely powerful devices, being capable of lifting from ¾ ton to 15 tons and are extensively employed for pulling suspension strand and pole guys. Because of their heavy weight and massive construction, they are not used for light pulling operations, such as that involved in pulling wire slack in open wire leads, the so-called slack blocks being considered more convenient for this purpose.

Recently, a light-weight version of the chain hoist has made its appearance on the market. This hoist, illustrated in *Figure 2*, is known as the "Mighty Midget" puller. It is so small and compact that it takes up no more space than regular slack blocks and can be stored in a small tool box. It weighs 6½ pounds and is capable of translating a pulling force of 28 pounds into 500 pounds between hooks.

The handle of the puller can be used for short pulls, when required, and has the added feature of converting into a crank by a simple side pull on the handle. In the crank position, the puller can be used for fast pulling or lifting, thus effectively competing with slack blocks in

(*Please turn to page* 44)

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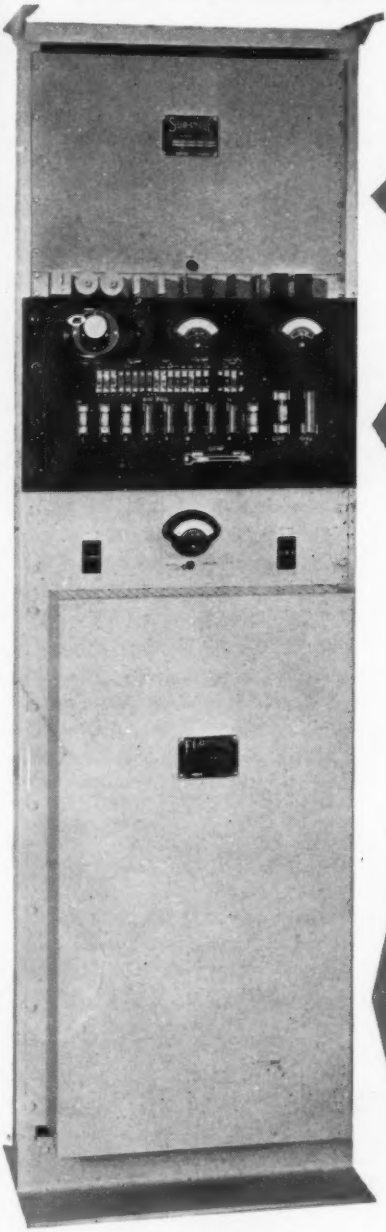

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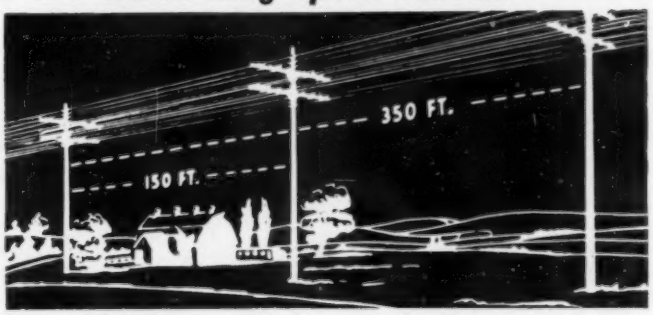
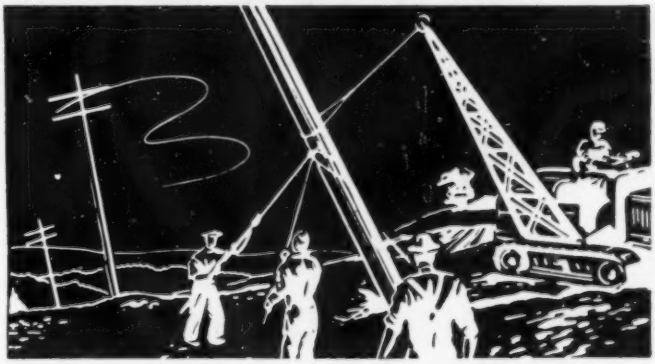


. . . Reduce Construction Costs



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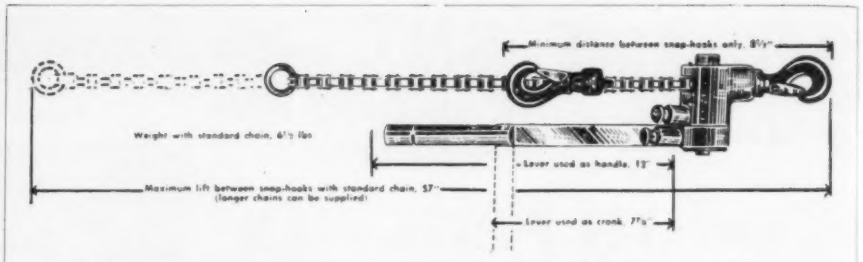

Minimum distance between snap-hooks only, 8½"
Weight with standard chain, 6½ lbs
Lever used as handle, 12"
Maximum lift between snap-hooks with standard chain, 57"
(longer chains can be supplied)
Lever used as crank, 7½"

Fig. 2—Showing appearance and dimensions of Mighty Midget puller.

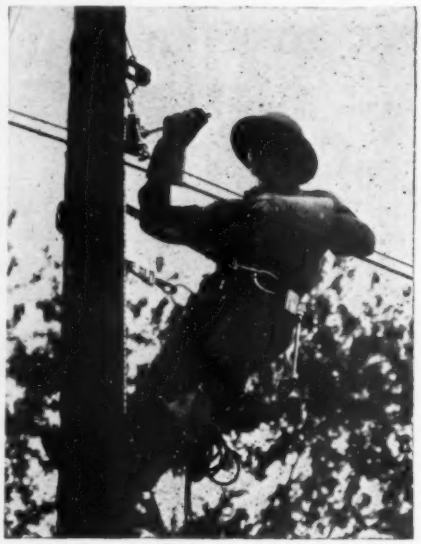


Fig. 3—Pulling wire on long span construction with the puller. Handle is in fast cranking position.

this respect. The handle locks in either the straight or the crank posititon. It is so constructed that it will bend on a load of 800 pounds, thus warning the user of an overload. This is considered a valuable safety feature. The chain has a tensile yield of 2,000 pounds and the snap hooks 3,000 pounds.

The chain on the standard size unit is sufficiently long to lift 57 inches. A very small headroom, for operating the hoist, is required, the minimum distance being 8½ inches between hooks.

Typical uses for the puller are illustrated in *Figures 3 and* 4. Other practical uses for the puller will suggest themselves to the telephone worker. This tool can also be employed for a variety of lifting purposes in the garage and repair shop, where no more than 500 pounds is to be raised. The puller can be particularly valuable for loading trucks with heavy wire coils, the lifting of which is sometimes a source of strained backs or muscles among employees.

The weight lifting capacity, combined with fast crank operation and ease of carrying makes the Midget puller a very useful tool for telephone plant workers.

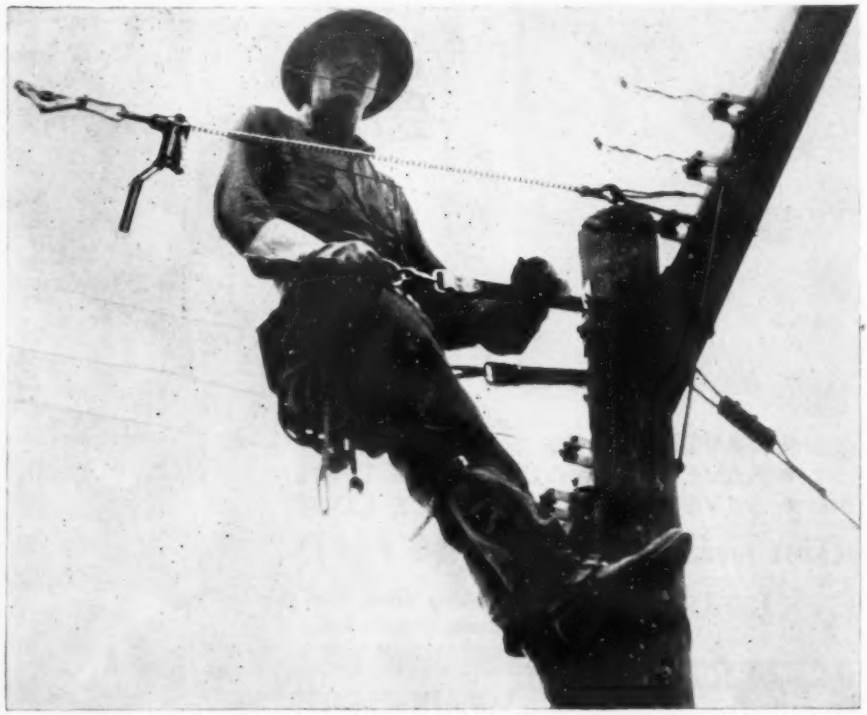


Fig. 4—Puller being used to raise cable. Note small amount of head room required for operating puller.

National and State Association NEWS

Pennsylvania Independents Hold 47th Annual Convention

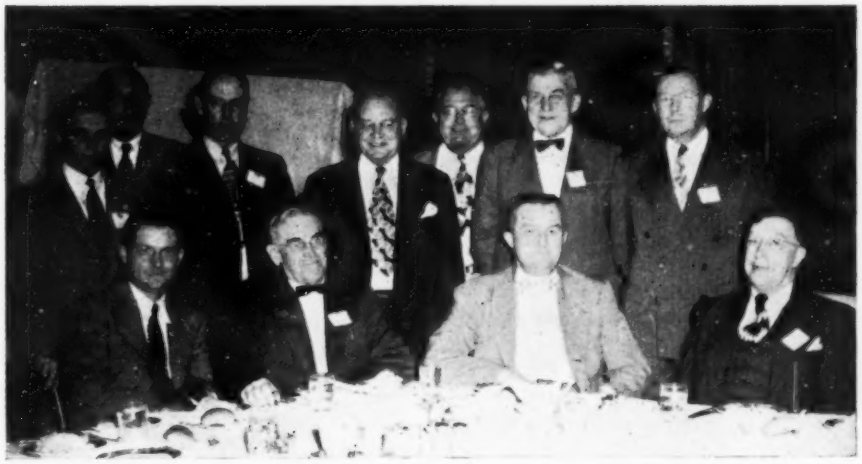
By ROY F. SMITH
Vice President,
Telephone Engineer Publications

MEETING at the Abraham Lincoln Hotel, Reading, Pa., members of the Pennsylvania Independent Telephone Association held their 47th annual convention, May 9-10.

Directors elected during the two-day meeting are: C. E. Eaby, president, Denver & Ephrata Tel. & Tel. Co., Ephrata; G. B. Rudy, Jr., president, York Tel. & Tel. Co., York; R. A. Smith, vice president, Blue Mountain Tel. & Tel. Co., Bangor; J. K. Stoltzfus, general manager, Conestoga Tel. & Co., Birdsboro; L. R. Thurston, president, United Telephone Co. of Pennsylvania, Harrisburg; B. H. Cravens, vice president & general manager, Meadville Telephone Co., Meadville; H. M. Engh, chairman, Pennsylvania Telephone Corp., Erie; A. M. Gibson, president, Home Telephone Co. of Sheffield, Sheffield; J. M. Horn, president, Vandergrift Telephone Co., Vandergrift; R. B. Scott, president, South Penn Telephone Co., Waynesburg, and A. N. Seward, general manager, Peoples Telephone Corp., Butler.

Officers elected are: President, Harry M. Engh, Erie; Vice-President, R. A. Smith, Bangor; Vice-President, A. M. Gibson, Sheffield; Executive Vice President, Albert C. Herbert, Harrisburg; Treasurer, G. B. Rudy, Jr., York, and Miss M. Ethel Cunningham, Harrisburg.

Speakers appearing at the convention included, retiring President Stoltzfus; Executive Vice President A. C. Herbert; Clyde S. Bailey, executive vice president of the United States Independent Telephone Association; W. H. Harrison, president of International Telephone & Telegraph Corp., New York City; Honorable Karl E. Mundt, United States Senator from South Dakota; Roger A. McShea, Jr., director, Bureau of Rates & Research, Pennsylvania Public Utility Commission, and Dr. J. O. Perrine, assistant vice president, American Telephone & Telegraph Co., New York City.



Board of Directors of Pennsylvania Independent Telephone Association. Front Row (l. to r.): R. A. SMITH, J. K. STOLTZFUS, L. R. THURSTON, C. E. EABY, A. C. HERBERT, J. M. HORN, RALPH SCOTT, B. H. CRAVENS, A. N. SEWARD, H. M. ENGH, and A. M. GIBSON.

Appearing as the first convention speaker, retiring president J. K. Stoltzfus stated that the problem of the Independent companies in meeting the demand for service is especially serious "since we serve the rural areas where large amounts of construction are required to provide facilities.

"Added to that," he said, "is the shifting of city populations to the rural districts. We don't know if that is because those people finally learned how nice it is out in the country . . . but we do know that those in charge of our nation's defense are encouraging manufacturers to locate new plants in smaller towns, and we know that the result is that we have more city people to serve . . ."

Mr. Stoltzfus commented that while the quality of service has suffered because of efforts to increase its quantity "that service is of much greater value to the subscriber as he can reach many more people.

"Today," he said, "the telephone is indispensable to a large percentage of our subscribers, even though the government continues to tax it as a luxury. Therefore, we must be alert to anticipate the needs of the public in the future. This requires our best thought and planning.

"We must design our plant so that it will adequately meet the needs of the present and immediate future, and at the same time provide for economical expansion as it may be required. To do this we must use all of the experience we gained in the past, and at the same time try to get a crystal ball picture of what we may expect."

Mr. Stoltzfus warned that "during the next year we shall face the challenge of providing service to all of the people that are now waiting for it, and it is my hope that next year when we meet we won't have people on waiting lists that are there today. Much of our long waited equipment that is necessary to provide this new service will be delivered in the next 12 months, so we face a period of great activity."

A. C. Herbert reported that Pennsylvania Independents now have more than 370,000 telephones. "This," he said, "represents an increase of 30,000 during the year 1948, and another 10-000 during the first four months of this year. Our installations were made at the same rate as the previous twelve month period, and all indications are that they will continue at this rate or better during the coming year. During 1948 the Bell Company added more than 220,000 telephones in Pennsyl-

Pennsylvania conventioners (l. to r.): JOHN HERBERT, A. C. HERBERT, DR. J. O. PERRINE, J. K. STOLTZFUS, D. C. SORENSEN of Telephone Engineer Publications, CHAS. CADWELL, president, Automatic Electric Co., Chicago, L. E. WHITING, J. M. HORN, and CLYDE BAILEY, Washington, D. C.

vania, bringing the State total to over two and three quarter million.

"I believe that the important fact shown by these figures is that our percentage gain of telephones keeps very close pace with the Bell Company —or approximately a 10% increase. But while the Bell has whittled their list of held orders down to reasonable size, our number of people waiting for service is still as large as a year ago, and there are fewer people waiting for Bell service today than for Independent. This fact by itself would indicate that we are not doing our part of the job, but when we can show that we are gaining stations at the same rate as the Bell, we can prove that there must be other factors which must be considered. It is important that these facts should be known by our public and by all concerned, so that when comparisons are drawn between companies, we can acknowledge that the Bell is doing a wonderful job, but that percentage-wise, we are doing just as well . . ."

Mr. Herbert stated that "Congress has been giving the farmer a lot of attention about the condition of his telephone service, or lack of it, with the threat hanging over us of the government entering the telephone field through the back door of R.E.A. loans to cooperatives."

"Our industry," he said, "claims that existing telephone companies are doing the job of providing the service in rural areas as quickly as physically possible, and we believe that your reports for the past year back up this contention. Of the 30,000 new subscribers we added last year, more than 10,750 were installed in rural areas, or better than 35% of our total gain. A year ago your estimates showed that you planned to spend more than one and a half million dollars for rural plant and the records show that you have done so in 1948, and are planning to spend a similar amount this year. Certainly these figures refute the claim of the socialistic planners who say that existing telephone companies are only skimming the cream of the crop, and are not trying to do a job in rural sections. . . ."

Mr. Herbert reported that Pennsylvania Independent companies have been granted increases in rates since the last convention, totaling approximately $135,000 in annual revenues.

"These," he said, "have ranged from a $400 increase for a service line company to a $35,000. boost for a Class A company. Increases for five additional companies are still pending and one of these is greater than any thus far received. While the increases we reported a year ago were all for small companies, five of the general rate boosts granted since then have been for Class A companies. Three companies did not increase their local exchange rates, but introduced toll charges between exchanges which previously had been free service areas. These tolls were instituted in order to improve service, and not for the revenue they would produce."

Stating that one of the reasons more companies have not found it necessary to increase their local service rates is the continued high revenue from toll service. Mr. Herbert warned this may not be a healthy condition, "as we are too dependent on our toll revenue and would be operating in the red if it should drop very seriously."

"Using the toll cleared by the Association office as a guide," he said, "we find that toll revenue increased by 5.2% in 1948 compared to a 6.6% gain in 1947 and 15% in 1946. While our toll revenue is still going up, it is doing so at a slower rate, and at a rate that does not keep pace with the gain in telephones. This would indicate that in the future a greater percentage of our revenues will have to come from local service rates, and forecasts the need of applying for increases in these charges. . . ."

At the concluding session on May 10, Roger A. McShea, Jr., director, Bureau of Rates & Research, Pennsylvation Public Utility Commission, described the test for determining whether the rates are reasonable.

"The Public Utility Law and interpretations placed thereon by the courts have answered this question," he said, "by establishing certain guide posts which must be followed—that is—that a utility must be allowed for its service a fair return on the fair value of its property used and useful in the public service. The fair value is in the first instance, determined by the commission and is based upon evidence submitted by the utility, the commission staff, and other interested parties in public hearings in which standard court procedure is followed. Due consideration is given to the original cost of construction of the property and the reproduction cost at fair average prices, as well as such other elements as the law requires. This determination by the commission is subject to review by the State Su-

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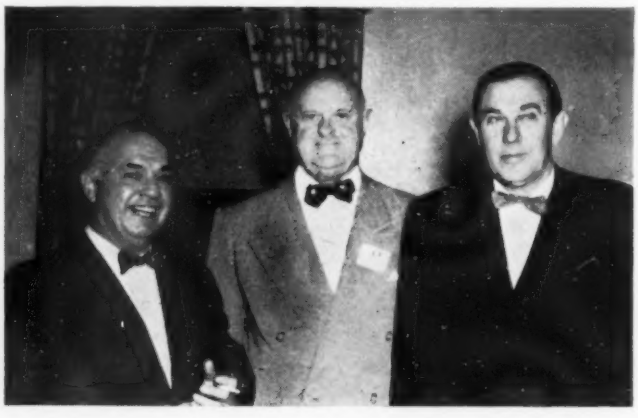


ROY SMITH (left), vice president of Telephone Engineer Publications, R. H. BURFEIND (center) of Automatic Electric Sales Co., and J. M. HORN, Vandergrift, Pa.

THE WHITNEY BLAKE BULLETIN

OUTER COVERINGS FOR DROP WIRE

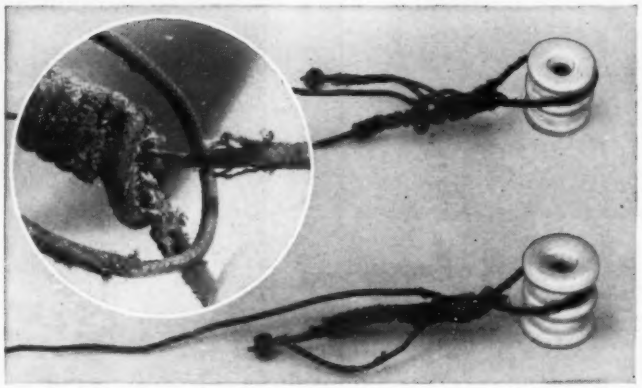


Fig. 1

Rubber insulation when exposed to weather deteriorates rapidly. Carbon black fillers cannot be used in the rubber to add to the weather resistance because of the electrical insulating properties desired. Then too, rubber insulation has little abrasion resistance. (See Fig 1)

Cotton braided coverings have been used on drop wire for many years to contribute abrasion resistance, to afford protection to the underlying rubber insulation and to add crushing strength. But cotton deteriorates in the weather and black waxes or low viscosity asphalts have been used to saturate the cotton braids to increase their life. Wax, and more recently, stearine pitch compositions have been applied over the saturated cotton to fill braid interstices and form a complete envelope over the wire. Powdered mica rolled into the outer surface contributes a pleasing appearance, reduces tendency for adjacent turns in a coil to stick together, reinforces the finish coating and contributes greatly to abrasion resistance.

The mica coating, however, soon weathers away and with it goes about half of the abrasion resistance of the wire. This usually occurs in months rather than years. The bituminous coating and saturant are also subject to weather deterioration — cracking and sloughing away — soon permitting sunlight and a more active deteriorating agent, the minute quantity of ozone in the atmosphere, to penetrate directly to the rubber. Ozone cracks rubber very rapidly, particularly when it is stretched a little as in a wire bend or tie. Rain or condensation of moisture on the wire results in shorts. If there is voltage on the line, the characteristic green copper discoloration due to corrosion may be observed at ties and often in the span of such wire.

For many years cotton braids of about 0.015 inch thickness were used on drop wire. Whitney Blake pioneered changes, first to braid of 0.020 inch thickness and later to 0.027 inch thickness, which added considerably to drop wire life by adding material to absorb more asphalt pitch impregnation and increasing abrasion resistance. In applying this asphalt it was necessary to stop machines for changes of reels. While the drums which rotated in shallow tanks were stopped, the dozens of partial turns immersed in hot saturant became overcured — seriously deteriorating the rubber. Whitney Blake again pioneered in the development of continuous processes for applying asphalt, stearine pitch, mica and anti-stick compound which eliminated these weaknesses. Still we felt that drop wire fell far short of the ideal.

We recognized that a drop wire is as good as its outer covering. A complete break with tradition appeared daring but it did lead to a consideration of every material known to man as a possible solution to the outer covering problem. Neoprene, the first American synthetic rubber, turned out to be the most likely candidate. It was available in the quantities required, at reasonable cost and uniform in characteristics. It was not subject to early weather deterioration. Manufacturing equipment was available for processing it and applying it to wires by efficient methods. After extensive research we were able to develop compounds of this material which exhibit a high degree of weather resistance as well as abrasion resistance.

Late in 1945 the results of field service trials of drop wire jacketed with our tough neoprene base compound in severe weathering locations showed no deterioration of the wire after 6 years. It was time to announce Teleprene, the first commercial neoprene jacketed drop wire.

How long will Teleprene last? We do not know. Our friends inform us that they do not have to send men out to clear troubles after a rainstorm on Teleprene drops. We have yet to see a failure due to abrasion but we do expect some. Ten or fifteen years from now we may venture to predict how long Teleprene will last.

In Teleprene the two traditional basic failings of drop wire have been overcome — namely, the weakness and short life of outer coverings and the lack of uniformly good and enduring adhesion of conductor to insulation. (See Fig. 2) Whitney Blake is proud to have contributed this development with its resulting savings of millions of dollars a year to the independent telephone and communications industry.

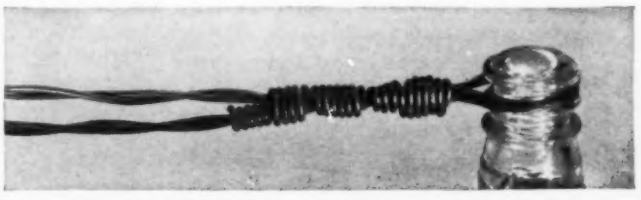


Fig. 2

Reprints of this advertisement are available on request.

THE WHITNEY BLAKE CO., BOX K, HAMDEN, CONN.

Left to Right: BOB WISEMAN of North Electric Co., Galion, Ohio, C. E. BROWN, Kellogg Swbd. & Supply Co., Chicago; COLBY KNAPP, Stromberg-Carlson Co., and WES HOPPER, North Electric Co., Galion, Ohio, photographed at Indiana convention.

perior Court if an appeal is taken by any interested party. The court determines whether the findings of the Commission are proper within the meaning of the law . . ."

Mr. McShea stated that it is very important in all rate proceedings that both the consumer and the utility are treated fairly.

"To lower by regulation or otherwise," he said, "the earnings of a public utility below a fair return tends to jeopardize the quality of service to the public and makes it virtually impossible for the utility to attract the capital necessary for expansion at a reasonable cost and to provide efficient operation for a more full and complete public service. Likewise for a utility to be permitted to charge rates which are unreasonable tends to lower the demand for service and the ability of the consumer to pay, which may result in a worsening of the utility's financial condition and a consequent slow down in the perfection of improved service. . . ."

In his concluding remarks, Mr. McShea stated that he is "somewhat disturbed by the rising volume of telephone complaints, particularly as they apply to the operations of Independent companies."

"However," he said, "there is substantial evidence that the pendulum may swing in the opposite direction and at a date not too far distant. We realize that a great many of the problems you face are not of your own making. Manufacturers of telephone equipment have been swamped with orders and shipments of central office equipment, cable and other materials have been deferred, deferred, deferred and again deferred. Central office installation crews are at a premium and this condition further aggravates and delays the solution of your problems.

"I am more than pleased to say that many of your plans of recent years are being transformed into the realities of today—Magneto service conversions to common battery service, both manual and automatic—faster and more accurate handling of local and toll messages—and the addition of thousands of telephone stations in the rural areas are some of the performances I have reference to. However, greater effort is required to meet the continuing demands for service and the fullest cooperation of all of us is needed to insure that the people of Pennsylvania received the best possible telephone service at a reasonable cost."

Indiana Independents Hold "Convention of Progress"

"STARS" paraded across the program of the 29th annual convention of the Indiana Telephone Association at the Claypool Hotel, Indianapolis, May 4-5. Advance publicity on scheduled convention activities stated that program speakers would "tell and show the type of progress which has put over a million telephones in service in 'Hoosierland.'" Entire slate of speakers at general sessions, including, President, W. J. Scheidler, Greensburg; Lamar S. Stoops, Napannee; Wm. E. Roby, engineer, Public Service Commission of Indiana; Wm. C. Henry, Bellevue, Ohio; Secretary W. H. Beck, and H. R.

(*Please turn to page* 50)

STROMB

there's very little else to be said!

Kennecott Telephone Cable litera criss-crosses the country—and a inch of it, found in a busy metropo or an open field, will test to t same high quality! Years of e perience—rigid standards of man facture—critical testing before sh ment—these explain the continui popularity of this brand.

Kennecott Telephone Cable is distributed by Stromber Carlson through five convenient located branch offices in Rochest Atlanta, Kansas City, Chicago a San Francisco.

STROMBERG

STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS - SO

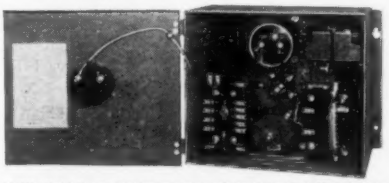
BERG-CARLSON recommends...

. . . bigger savings plus better service with raytheon rectifilters*!

For more than a decade, leading independent telephone companies have found that Raytheon Rectifilters are the most economical and efficient way to supply steady DC power to PBX boards directly from an AC source.

With no moving parts, the Raytheon Rectifilter requires neither adjustment nor maintenance. It will outlast many sets of batteries, release wires carrying charging current from central office to subscribers' PBX boards for revenue producing service, and minimize power cost because of high efficiency in converting from AC to DC.

Dry disc rectifying units and other components are designed for long-life, trouble-free service. The Raytheon Rectifilter will end your telephone power problems. Just plug it in, close the door —and forget it!



RFR 1044-G RECTIFILTER WITH DOOR OPEN

*Reg. U.S. Pat. Off.

habirshaw no. 17 bronze drop wire

NO. 17 BRONZE PARALLEL NEOPRENE SHEATHED DROP WIRE

NO. 17 BRONZE TWISTED PAIR NEOPRENE SHEATHED DROP WIRE

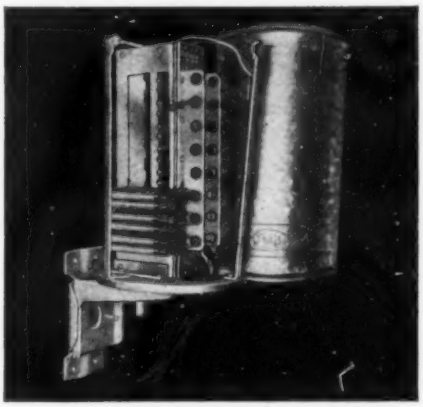
Stromberg-Carlson offers these two new Drop Wires with five important features:

1. High Dielectric Strength.
2. Flame-Resistant—Sheath will not conduct flame.
3. Weather-Resistant—No exterior braids to weather and festoon; impervious tc effects of moisture, acids, oils, and factory fumes.
4. Mechanically Strong.
5. Time-Tested.

DISTRIBUTED EXCLUSIVELY BY STROMBERG-CARLSON

cook type S-20

pole cable terminal



Can be used as a protected or unprotected terminal. Made in 6, 11, 16, or 26 pair capacity.

Cook Type S-20 Pole Cable Terminals are carefully engineered to offer the user:

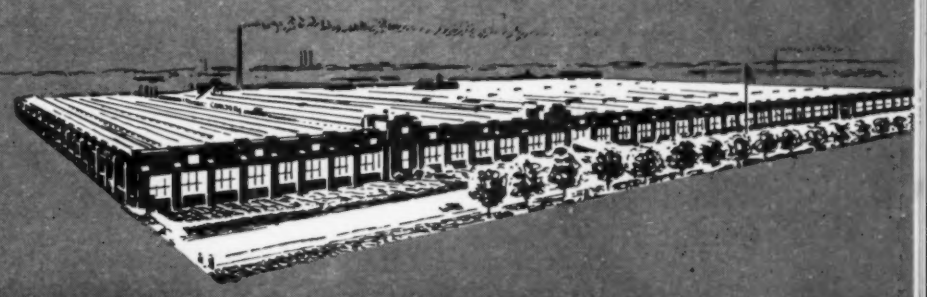
MAXIMUM ECONOMY—because Cook Type H 20 Protector Units, containing fuses and primary and secondary lightning arresters, are added only as they are required.

MAXIMUM CONVENIENCE for installation and servicing. Drop wire connections are at front. Drops are led through individual insulating knockout holes. Self-soldering nozzle lies close to pole. Hood locks in raised position for working. Separate mounting bracket eliminates gaining of pole and provides easy installation.

MAXIMUM PERFORMANCE when used separately or as part of the Cook Trans-Mount System of Protection and Distribution. S-20 is of all steel construction, hot galvanized. Complete terminal designed for maximum insulation.

RCARLSON

Factory, General Offices: Rochester 3, N.Y.
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto



• SOU[illegible]UIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISIC

Gruehle, public relations assistant Indiana Bell Telephone Co., brought the Indiana conventioners a top notch program that made the convention live up to its theme—"The Convention of Progress."

The ladies also had a definite part in the success of Indiana's 29th convention. In addition to a "Fashion Breakfast" and informal open house after each session, traffic and commercial conferences were held on May 4-5. Speakers at the conferences included: Edward J. Ford, Fort Wayne, Ind.; Mrs. Irene Watts, Elkhart, Ind.; Betty Noonan, Indianapolis, and Charlotte Dick, Napanee.

Directors elected were: Frank E. Bohn, Fort Wayne; R. F. Lucier, Warsaw; R. D. Pontius, Rochester; C. E. McCormick, Terre Haute, and S. K. Trippett, Princeton. New officers are Roscoe D. Pontius, Rochester, president; R. F. Lucier, Warsaw, first vice-president, and R. E. Brookbank Pendleton, second vice-president. W. H. Beck, Indianapolis, was re-elected secretary-treasurer and general manager.

Retiring association president W. J. Scheidler opened the general session on Wednesday morning with a stirring address that called attention to present industry problems. Commenting that there was never a time in the history of the telephone industry when it did not have its problems to discuss at its annual convention, Mr. Scheidler stated that "this year is no exception, for in my opinion, it faces the most crucial test in all its history, in that its very existence is threatened by the Rural Telephone Bills now before both Houses of Congress."

He warned his audience that the present era of the telephone industry is "not one for the meek, anymore than it was in the past, or will be in the future."

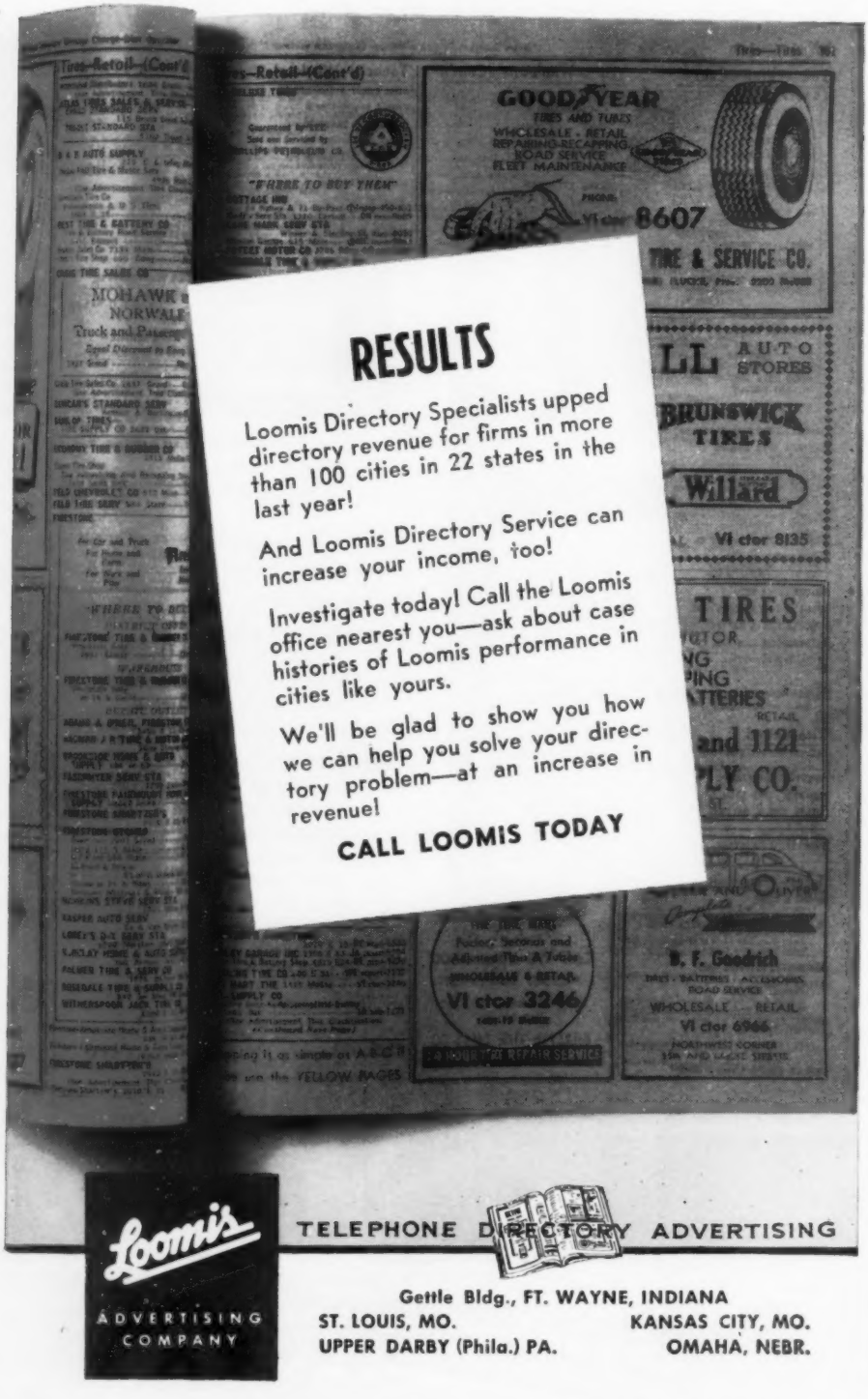
"The condition of some companies today," he said, "clearly reflects the lack of courage to obtain rates that would service proper financing to build a plant capable of rendering the type service demanded by a progressive country. . . . For those companies that accepted their responsibilities in the past and kept pace with progress, the road ahead is strewn with far fewer obstacles to overcome than for those that shirked obligations. . . ."

Pointing out that the telephone industry is at the crossroad, Mr. Scheidler stated, "Turning to the right or to the left will accomplish nothing, for it is impossible to stand still in the telephone

C. E. McCORMICK, vice president Citizens Telephone Co., Terre Haute, Ind., and EMMETT SWANSON, president of Home T&T Co., Fort Wayne, Ind.

business, or any other business, it either goes forward or backward. There is only one road for us in the telephone business to travel and that road is forward."

LaMar S. Stoops, manager, Nappanee Telephone Co. discussed "50 years of Progress" at the first general session on May 4. During his presentation of a brief history of the Nappanee Telephone Co. Mr. Stoops stated that from the original 53 subscribers, served by one operator, the Nappanee exchange has grown to a system serving over 1500


RESULTS
Loomis Directory Specialists upped directory revenue for firms in more than 100 cities in 22 states in the last year!
And Loomis Directory Service can increase your income, too!
Investigate today! Call the Loomis office nearest you—ask about case histories of Loomis performance in cities like yours.
We'll be glad to show you how we can help you solve your directory problem—at an increase in revenue!
CALL LOOMIS TODAY
GOODYEAR
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TELEPHONE DIRECTORY ADVERTISING
Gettle Bldg., FT. WAYNE, INDIANA
ST. LOUIS, MO.
KANSAS CITY, MO.
UPPER DARBY (Phila.) PA.
OMAHA, NEBR.

telephones. In the interim, there have been four complete switchboard replacements and approximately three complete changes of telephone instruments.

The final speaker at the Wednesday morning session, Wm. E. Roby, senior engineer of the Public Service Commission of Indiana, discussed the history of small mutual telephone companies in Indiana, their original purpose, problems through the years, present difficulties, and prospect for future usefulness with satisfaction to all concerned.

Mr. Henry, during his discussion of "Telephone Responsibilities Today," described the Poage Bill, recently approved by the House Agriculture Committee as a "snare and a delusion," baited with a false "lure of cheap two per cent government money." The Ohio telephone executive, who also is former president of the United States Independent Telephone Association, declared "Government REA rural legislation would be the first step in nationalization of the telephone industry in the United States. . . . Any legislation which would put the Government in direct competition with those private companies already established in the telephone business will lead to taking over of our industry, bit by bit. Yet this prosposal in Congress is typical of much of the thinking of those who are advocating further centralization of power in Washington."

In his report to the convention on May 5, W. H. Beck, secretary-treasurer, stated that in the early summer of 1948, several conferences were held with personnel of the Indiana Public Service Commission in an attempt to arrive at a method mutually satisfactory to industry and Commission which would adjust discrepancies existing in intrastate toll charges between some exchanges in the state. These discrepancies were caused by the absence in some company tariff filings of concurrance in intrastate toll rates of the Indiana Bell Telephone Company. Only a few irregularities are still existant and adjustments have been effected without inconvenience.

A feature of the final general session on May 5 was the reading of the four winning papers in the commercial and traffic contest. First and second place awards were presented to Miss Jo Ann Rogers, and Miss Betty Jean Springer, both of the Public Telephone Corp., Greensburg, Ind., for their papers discussing "My Solution To Party Line Complaints." Mrs. Ruth Martin, division supervisor of records and results, Indiana Associated Telephone Corp., Lafayette, Ind., won first prize for her paper on the subject "Extra Dollars From More Completions."

Save Time-
Reduce Costs

by Using
KEARNEY
Solderless
CON-NEC-TITES

Kearney Con-nec-tites provide a positive, permanent, solderless, high pressure contact. They give you economical and dependable connections. They are quickly and easily installed. Use them for connecting bridle to arm of open wire, for test points, dead ends, buck arm corners or in test pole connections. Available for all combinations of metallic conductors. Standardize on Kearney Con-nec-tites. For complete information and prices see your jobber — or write

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Overhead and Underground Utility Equipment

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OLIVER POLE LINE MATERIALS

OLIVER TELEPHONE LINE
PINS

The Oliver pins illustrated are made for use with standard insulators having 1-inch diameter pin hole. They are forged from high carbon open hearth steel, and hot dip galvanized. Wood cobs are of air-dried oak, boiled in paraffine.

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IRON AND STEEL
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South Tenth and Muriel Sts. • Pittsburgh 3, Pa.

C. F. Melick Reelected President Of Illinois Telephone Association

THE 44TH annual convention of the Illinois Telephone Association, held at the Hotel Pere Marquette, Peoria, April 27-28, attracted a record registration of approximately 500.

Directors reelected for terms of three years are: Verne B. Clark, Pekin; R. A. Lumpkin, Mattoon; A. T. Renn, Chicago; Burton W. Saunders, Springfield; T. A. Saunders, Clinton; and R. B. Still, Bloomington.

Offiers reelected are: C. F. Melick, Eureka, president; Walter Dakin, Madison, Wis., vice president; J. G. Hardy, Springfield, secretary, and Burton W. Saunders, Springfield, treasurer.

The two-day session presented top industry speakers including: J. G. Hardy, association secretary; C. F. Melick, president; Ben B. Boynton, general counsel; Walter Trettin, vice president, Illinois Commercial Telephone Co., Springfield; Shumway J. Bird, Springfield; C. C. Pearce, Riceville, Iowa; I. E. Parett, Chicago; Clyde S. Bailey, executive vice president United States Independent Telephone Association, and Ray J. Alter, Galesburg.

The Traffic Conference featured addresses by: Harry Bates, Dixon; W. C. Bosworth, Chicago; Cecelia M. Burke, Springfield; Kathryn Puterbaugh, Pekin; Myrtle Henninger, Springfield; Elizabeth Drysdale, Rantoul; Dorothy Sears, Bloomington; Harry King, Springfield; Goldie Dahlquist, De Kalb; Edwina Gordon, Mattoon; Mary White, Bloomington; T. H. McGovern, Pekin; Marie Sullivan, Galesburg; Ruth Richards, Springfield; H. S. Dennison, New York City; Anna Wilson, Chicago; Lloyd Graham, Chicago and Joanne Wargo, Eureka.

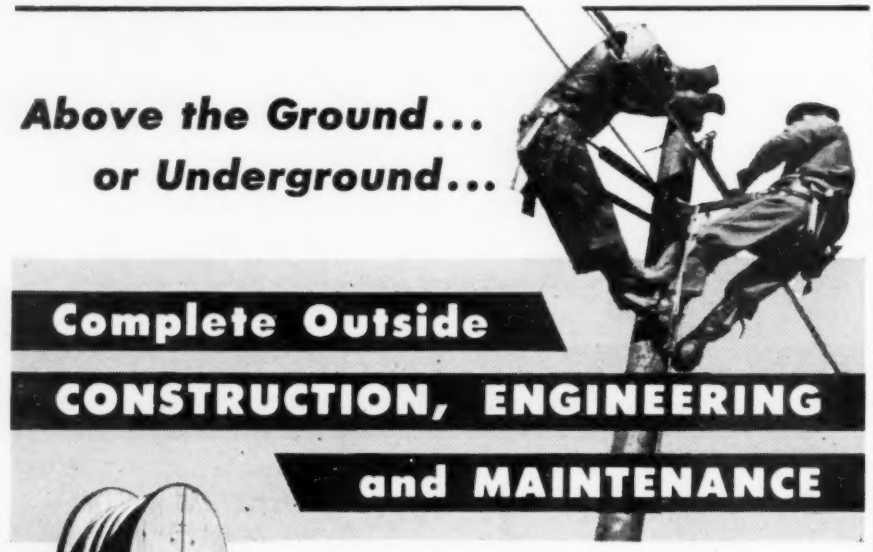
Secretary Hardy reported that much of the association's work during the past few years has been advising and assisting small telephone companies in preparing applications for rate increases with the Illinois Commerce Commission. The association assisted and advised approximately 70 telephone companies in preparing rate increases and rules and regulations.

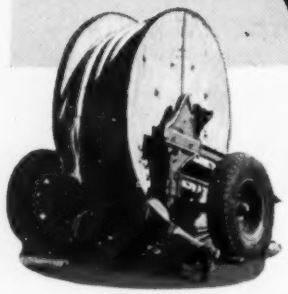
General Counsel Ben B. Boynton told the Illinois conventioners that "it is short sighted not to properly maintain a telephone property."

"Lack of maintenance," he said, "is certain to result in poor service and deterioration of the property investment. Subscribers are more averse to paying a low rate for poor service than to paying a substantially higher rate for good service. The Commission in considering the rates of a company would undoubtedly prefer to have a sufficient amount of maintenance expense to adequately maintain the property and thereby to permit the furnishing of good service than to have a lesser amount of maintenance expenses so as to require lower rates at the expense of the service. . . ."

During his discussion of "Current Problems of Dial Conversion," W. O. Trettin, vice president and chief engineer of the Illinois Commercial Telephone Co., suggested that "while the various makes of equipment are reliable and have their points to recommend them, it is recommended that various manufacturers be given an opportunity to submit quotations for the particular conversion under study.

Mr. Trettin stated it is usually advisable to prepare for the actual cutover by scheduling the essential steps required to insure that nothing will be overlooked. On the assumption that the equipment is on order and delivery is expected in the near future, the following represents a typical cutover schedule. (the time intervals shown must be adjusted to the particular case under study):





Whatever your problem . . . wherever it may be . . . we can help you plan, erect, repair or maintain your outside telephone plant.

Years of on-the-job experience working with independent telephone companies from coast-to-coast, the finest and most modern equipment, PLUS the know-how of trained and experienced crews assure you efficient, economical, long-lasting service.

Our engineers have the background and practical experience to help you plan and engineer your job and to assist you in obtaining critical materials.

All work is done to A T & T specifications or equivalent unless otherwise requested.

So, why not put this experience and skill to work for you—call us today! Let us give you time and cost estimates on construction, maintenance or repair jobs. No obligation! Do it today!

NEALE CONSTRUCTION CO.
ENGINEERING • CONSTRUCTION • MAINTENANCE
TOPEKA, KANSAS PHONE 4-2621

	Time Intervals
Advise connecting companies	"0"
Arrangements with control office	"0"
Arrangements with "switched lines"	"0"
Let contract for building construction	+10
Start outside plant work	+10
Complete building construction	+30
Equipment delivery and start installing	+45
Complete outside plant work	+65
Complete equipment installation	+65
Prepare number assignments	+65
Prepare main-frame cut sheets	+65
Establish final cutover date	+70
Prepare directory	+75
Start installing telephone and customer instruction	+75
Complete installing telephones	+82
Distribute directory	+85
Cutover pulicity	+85
Cutover	+90
Observation and test period	+97
Remove manual equipment	+107

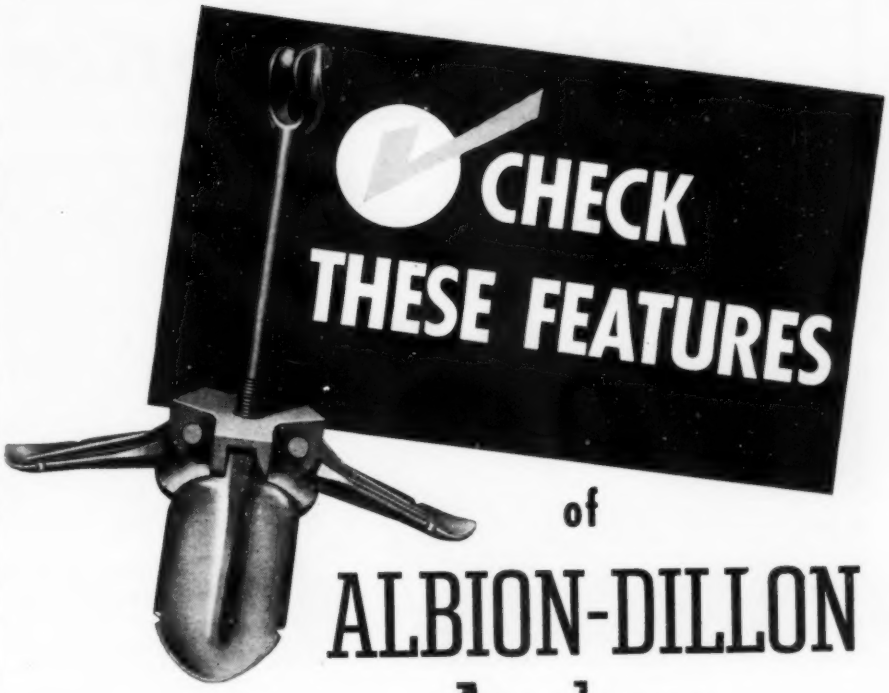
Note: "O" date represents the date on which the scheduled sequence of operations would begin. The "+" indicates the number of days elapsed since "O" date.

Clyde S. Bailey, executive vice president of the United States Independent Telephone Association, in the concluding address at the Thursday morning session, stated that the interests of Independent telephone companies at the current session of Congress have centered mainly around the following four pieces of legislation: (1) Minimum wage legislation including the 500 station exchange exemption, (2) rural telephone legislation, (3) legislation to repeal the NLMRA, commonly called the Taft-Hartley Act, and (4) telephone excise tax legislation.

Mr. Bailey stated that telephone companies do not need "the spur of federal legislation to inspire them to acquit their public service responsibilities." They have a record, he said, "of magnificent achievement in putting telephones on farms. Since V-J Day more than a million telephones have been installed by the Bell System. Independents have installed more than 400 thousand. There is no national rural telephone problem. At most only 15% of the nation's area is without adequate telephone coverage. Those areas are down in the South and Southeast where farm income is low.

"About 530 thousands of the nation's farms are unoccupied. If the bureaucrats in Washington had a realistic definition of a farm where there would be less hue and cry about a so-called farm telephone problem. Moreover, did you know that 38.7% of the nation's estimated 6 million farms were occupied by sharecroppers and other tenants? And did you know that 24.9% of the nation's farms have less than 30 acres?"

At the final session on Thursday afternoon, Jeff Williams, of Chickaska, Okla., discussed "The Source of Our Salvation."



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ALBION-DILLON
Anchors

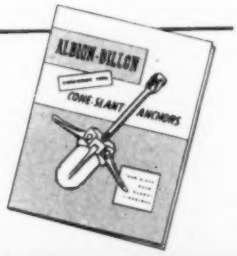
- Made of High-Strength Malleable Iron
- Economical in Price— Easy, Economical to Install
- Three Long Blades Extend Deeply in Solid Earth
- Lasting Strength Gives Them Lasting Holding Power
- Approved by R.E.A.— Selected by Leading Companies

For dependable guying under all conditions, rely on Albion-Dillon Expanding Type Anchors, made of malleable iron for *lasting* strength. Pull tests prove that A-D Anchors will withstand up to 46,000 lbs!

When you add up all the features, as listed above, you can understand why large companies are now specifying A-D Anchors in increasing numbers.

Send for Folder!

If you are not familiar with A-D Anchors, send for descriptive folder which includes specifications.



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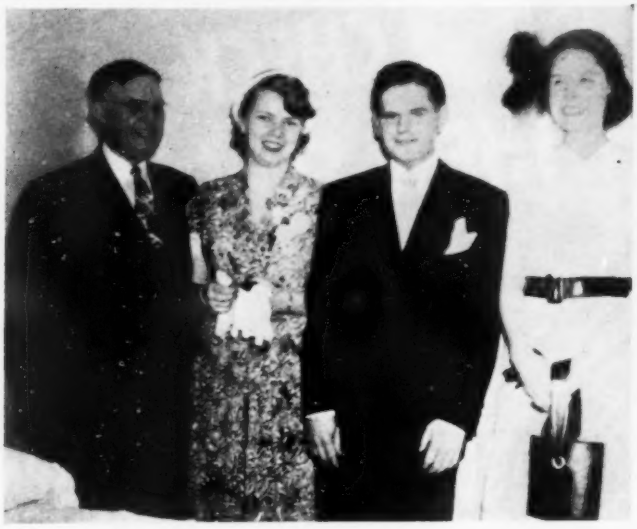
"One of America's Foremost Producers of Malleable Iron"
ALBION, MICHIGAN

State Convention Views

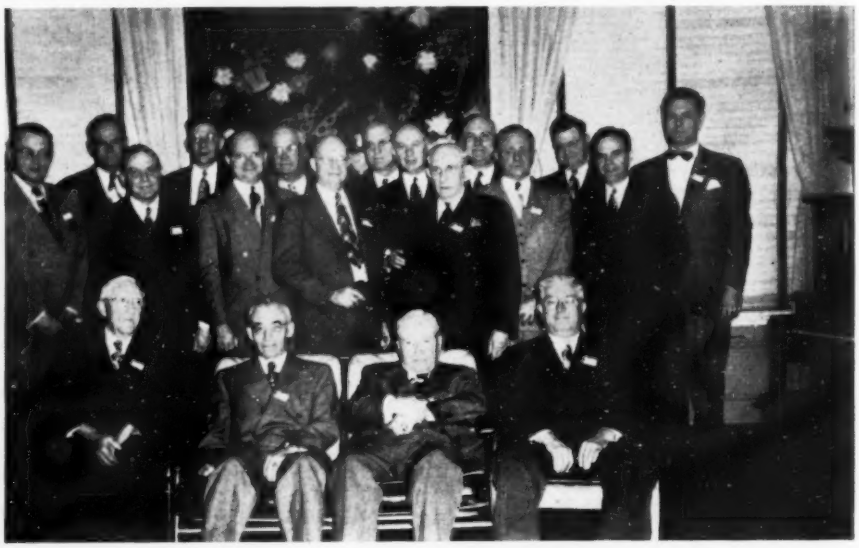


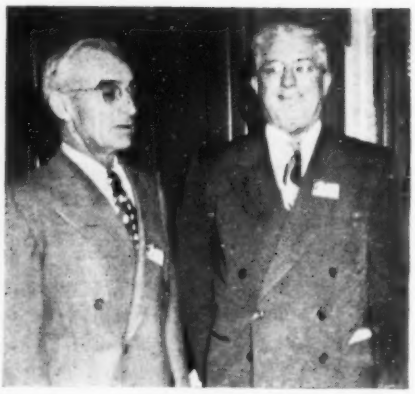
Above: C. F. MELICK, Eureka, Ill., and WALTER DAKIN, Madison, Wis., discuss Illinois convention activities.

Left: DAN McNULTY (left), pres. of Telephone Repair & Supply Co., Chicago, G. W. SCHOMAKER of Stromberg-Carlson and MRS. ELLEN NEALE of Cable Spinning Equipment Co., Topeka, Kansas, at Indiana meeting.

Above: DR. J. G. SCHWARTZ (left), Jerseyville, Ill., and DR. R. E. GORDON, El Paso, photographed at Illinois convention.

Right: Officers and directors of the Illinois Telephone Assoc. and guest CLYDE S. BAILEY, executive vice president of the USITA.





Above: President C. F. MELICK (left) and Secretary J. G. HARDY of the Illinois Tel. Assoc.

Left (l. to r.): RAY ALTER, AUSTIN SAUNDERS, JACK HARDY, VERNE CLARK, J. I. KENNEDY, H. A. JOSLYN and BURTON SAUNDERS, photographed at Illinois convention.

QUESTIONS and ANSWERS

EDITED BY

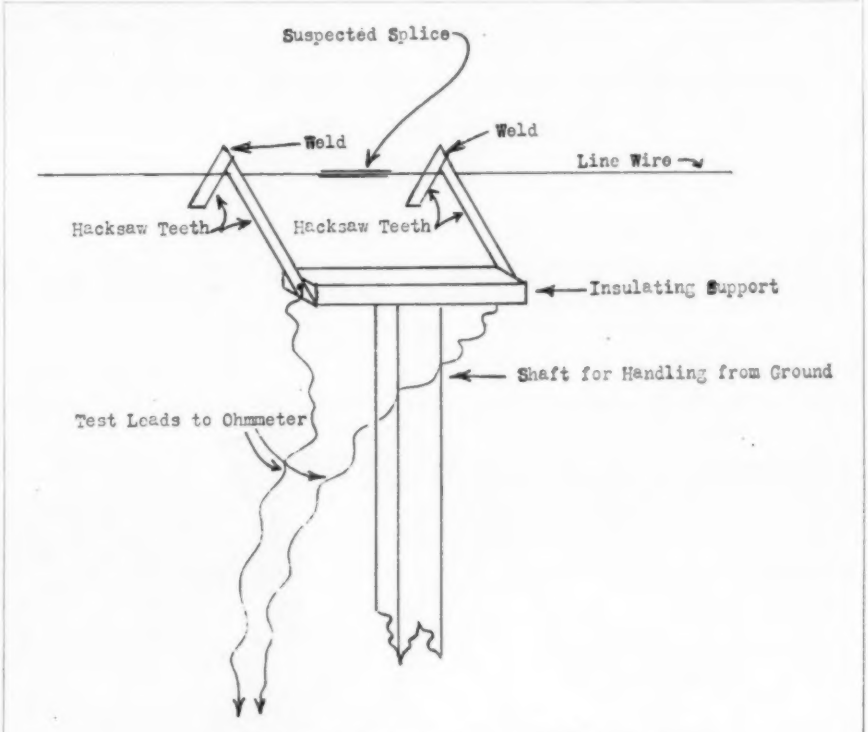
JAY G. MITCHELL

Q. We are experiencing quite a bit of trouble due to high resistance joints in our metallic telephone circuits. Can you suggest an efficient method of locating these joints and a wiring diagram showing how measurements should be made?

A. When the metallic circuit is very old and it is practically certain that many of the joints in the wire have been in service for a long time it is best to proceed by sectionalizing the circuit and measuring the resistance of the several sections from the beginning of the section and a temporary short circuit at its far terminal. This will serve to disclose if any particular stretch of the circuit is causing the trouble or if the trouble is general throughout.

The defective sections, and in the case of an old circuit this may very well be the entire length, must then be patrolled. The patrol is for the purpose of testing the resistance of every splice in the wire with a low reading Ohmmeter. If only one man is available to patrol the circuit with the Ohmmeter it will be necessary to construct a contactor one type of which is shown in the accompanying sketch. By hooking the hacksaw blade hooks over the line wire so that they span the suspected splice and then moving the contactor slightly up and down the hacksaw teeth will cut through the rust or corrosion on the line wire and the resistance of the splice can be measured. The allowable resistance of any splice should not be higher than the length of line wire between the hacksaw hooks **plus the previously tested resistance of the test leads.** In a good splice the resistance will remain constant when the wire is moved but in case an otherwise satisfactory splice shows a variation as the wire is moved it is defective and should be replaced.

In my opinion a much more reliable method is to have two men in addition to the man reading the Ohmmeter to climb poles and affix screw contact clamps to the line wire at about two sections apart. The allowable resistance in this case should be the resistance of two average sections of line wire **plus the previously determined resistance of the longer test leads.** The advantage of this method is that the readings of the Ohmmeter are higher on the scale and therefore more easily interpreted.



Splice Test Contactor made from Hacksaw Blades

Q. I have been reading your QUESTIONS AND ANSWERS for several years which are very interesting and very useful. I would like to receive a pamphlet or see published a table of resistance in ohms of different sizes of wire used in telephone work, copper wire No. 14, No. 12, No. 10, copper weld No. 12, iron wire 85 H.T.L. 135 H.T.L. and soft iron No. 12 these are some of the sizes I am most interested in, but would like to have all sizes and also of cable. Self addressed and stamped envelope for immediate reply is enclosed.

A. This inquiry calls for tabulations that can only be found in a number of books. I believe that the "Handbook for Telephone Managers and Engineers, by B. C. Burden would be found very useful and the information not found in that book can be secured, in most cases, by directing an inquiry to the manufacturer as shown in the

(*Please turn to page* 56)

The NEW STEWART TEST SET

Quickly locates line trouble without opening the line or cutting a wire. Common battery or magneto lines are tested with equal ease.

Weighs only 12 lbs. and is equipped with shoulder strap. Detector coil is standard. Available from stock.

Price—**$58.00**

Stewart Detecto-Meters and Cable Testers also available from stock.

Send for bulletin

SINCE 1926

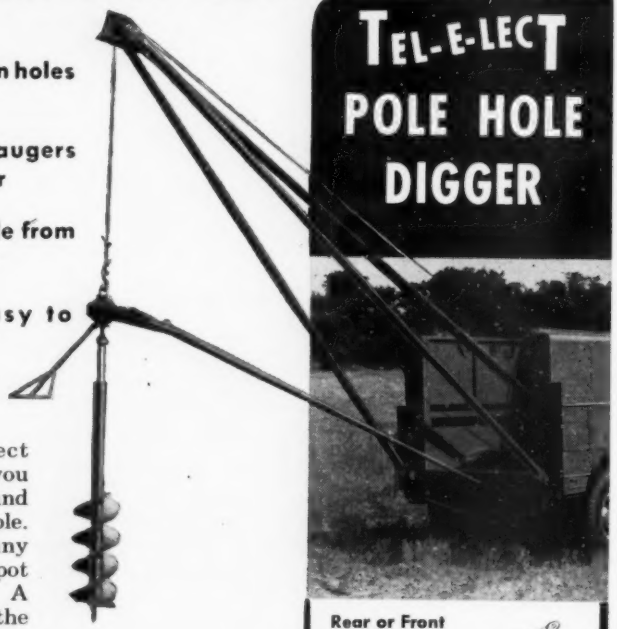
TELEPHONE REPAIR & SUPPLY COMPANY

DAN'L H. McNULTY, President and Manager

1760 Lunt Avenue **Chicago 26, Illinois**

Operates ON ANY DERRICK TRUCK

- **Adjustable for clean holes to 8 ft. deep**
- **Interchangeable augers 9" to 16" diameter**
- **Drills a straight hole from any truck position**
- **Easy to use—easy to transport**



WITH the Tel-E-Lect Pole Hole Digger, you use the same truck and crew that sets the pole. You can drill a hole any place that you can spot the pole derrick. A single bolt attaches the digger to the truck; it works suspended from the derrick. Powered by the truck motor through a power take-off shaft, Tel-E-Lect is raised and lowered by the winch line. Fits the budget of even the smallest utility, and quickly pays for itself. *Ask for circular.*

TEL-E-LECT PRODUCTS, Inc.

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advertising columns of TELEPHONE ENGINEER AND MANAGEMENT and TELEPHONE ENGINEER FORTNIGHTLY. The handbook recommended can be secured in two volumes. It can be secured from TELEPHONE ENGINEER. The price of volume one is $3.00, and it is recommended to the writer of this inquiry.

New Book Describes Acoustical Terminology Standards

Recent scientific developments in ultrasonics, recordings, underwater sound, acoustical instruments, and shock and vibrations are reflected in a new edition of the Proposed American Standard Acoustical Terminology just published by the American Standards Association. Because of the importance of the uniform use of terms in these fields, the new edition is being published for a period of trial study before its final approval.

A committee of representatives of 33 national organizations, sponsored by the Acoustical Society of America under the procedure of the American Standards Association, prepared the standard. Special cooperation in the work was given by the Institute of Radio Engineers. A combined IRE electroacoustical committee and ASA subcommittee on acoustical terminology was directly responsible for development of the standard. Approximately three times as many terms are included in the present proposal as were given in the earlier edition approved in 1942. The proposed new edition consolidates the 1942 document with an expansion of the electroacoustic treminology developed by the Institute of Radio Engineers.

Efforts have been made to keep the definitions consistent with those in stanrards relating to neighboring fields. Each definition has been made as complete as possible using terms found in a standard dictionary. Workers in theoretical and applied acoustics and all others interested are invited to send comments on the proposed standard acoustical terms to the committee in charge of the work. Comments should be addressed to Messrs. E. Dietz or C. F. Wiebusch, Bell Telephone Laboratories, Inc., Murray Hill, N. J., not later than September 30, 1949.

Copies of the Proposed American Standard Acoustical Terminology, Z24A, can be obtained from the American Standards Association, 70 East 45 Street, New York 17, N. Y. at one dollar ($1.00) each.

GOOD WORK!

The nation's 6,000 Independent and Bell Telephone companies together may well be proud of the tremendous expansion of central office facilities in the past three years—an expansion which has added over 10,000,000 new telephones. Through careful planning and efficient operation, these companies are giving our country the world's best telephone service. Western Electric has helped make this possible by supplying quality equipment that gives many years of service.

Western Electric

TELEPHONE APPARATUS AND CABLE

A HANDBOOK for Telephone Men

SUBJECT—Stringing Sags for Copperweld Telephone Conductors

INDEX: Open Wire Construction
DATE: June 15, 1949

TABLE 1—Physical and Electrical Properties of Solid Wire Copperweld Telephone Conductors

COPPERWELD conductors are composed of an inner steel core with a copper covering firmly welded to the core, thus combining the low resistance characteristic of copper with the high strength of steel. Table No. 1 lists the characteristics of various sizes of copperweld wires of the 40 percent and 30 percent conductivity grades.

Methods of obtaining the proper tension in copperweld conductors in stringing operations are the same as those used for steel lines wires, namely, adjusting the wire sag by the sighting method and measuring the wire tension with a dynamometer. Another method is also given in this section; this is the return wave method.

Tables 2 to 4 list stringing sags and the corresponding tensions in copperweld conductors of the 40 percent conductivity grade for span lengths of 80 to 180 feet, 160 to 280 feet, and 250 to 500 feet, respectively. Copperweld wires are suited for short, medium, and long span construction.

In addition each table shows the storm load capacity in pounds per foot at O degrees F at the corresponding stringing tensions. The storm load capacity is useful when it is desired to determine the proper load capacity to meet certain minimum requirements of telephone line construction for a given ice load.

The tables and chart in this section are based on information given in Copperweld Engineering Data E. D. 1683 and are furnished by courtesy of the Copperweld Steel Company, Glassport, Pa.

Size Awg. or Inch	Diameter (Inch)	BREAKING STRENGTH (Lbs.) High Strength 40% Cond.	High Strength 30% Cond.	Extra High Strength 30% Cond.	WEIGHT Lbs. Per 1000 Ft.	WEIGHT Lbs. Per Mile	RESISTANCE Ohms Per 1000 Ft. at 68°F. 40% Cond.	RESISTANCE Ohms Per 1000 Ft. at 68°F. 30% Cond.	CROSS-SECTION Cir. Mils	CROSS-SECTION Sq. In.
.165	.1650	2,523	2,780	3,368	75.55	398.9	.9715	1.295	27,230	.02138
6	.1620	2,433	2,680	3,247	72.85	384.6	1.008	1.343	26,250	.02062
7	.1443	2,011	2,207	2,681	57.77	305.0	1.270	1.694	20,820	.01635
8	.1285	1,660	1,815	2,204	45.81	241.9	1.602	2.136	16,510	.01297
.128	.1280	1,647	1,802	2,188	45.47	240.1	1.614	2.152	16,380	.01287
9	.1144	1,368	1,491	—	36.33	191.8	2.020	2.693	13,090	.01028
.104	.1040	1,177	1,283	1,325*	30.01	158.5	2.445	3.260	10,820	.008495
10	.1019	1,130	1,231	—	28.81	152.1	2.547	3.396	10,380	.008155
12	.08081	785	—	—	18.12	95.68	4.051	—	6,530	.005129
.080	.080	770	—	—	17.76	93.77	4.133	—	6,400	.005027

Modulus of Elasticity : 24,000,000. Coefficient of linear expansion : .000,007,2 per degree Fahrenheit.
*40% Conductivity.

News Briefs

(*Continued from page* 28)

the blackout ended the most used thing in Winter Park, Fla. was probably the dial on the telephone.

The customers had their part in the changeover. First, the piece of Scotch tape on each instrument that held in place the number of that telephone, written on pasteboard, was pulled off, and the new number appeared.

Fast Growth

Winter Park Telephone Co. started with 10 phones in 1911, grew to:

1913	62
1925	825
1930	824
1933	741
1940	1,439
1945	1,958
1948	3,537

Then came the matter of memorizing new numbers, forgetting the old—and new numbers in Altamonte, in Forest City, in Maitland and Eatonville and Casselberry and Longwood—all dialed directly, then, through the new system and equipment that the Winter Park Telephone Co. has been since last June installing, and years in planning.

President-founder Carl Galloway Sr., and his three sons, Joe (executive vice-president) Allison, (general manager) and Carl Jr., vice-president in charge of trouble shooting might not have made the switchover for another few years, except that payrolls grew so heavy with pay hikes, and employes asking more that it became "economically not only feasible but necessary".

The new system is estimated to cut the traffic payroll from $43,000 a year to around $20,000; the operators themselves from a complement of 25 down to about nine.

Incidents connected with the cutover were surprisingly few. There was the elderly couple that refused to have a dial put on their telephone. Carl Sr. went out to talk to them.

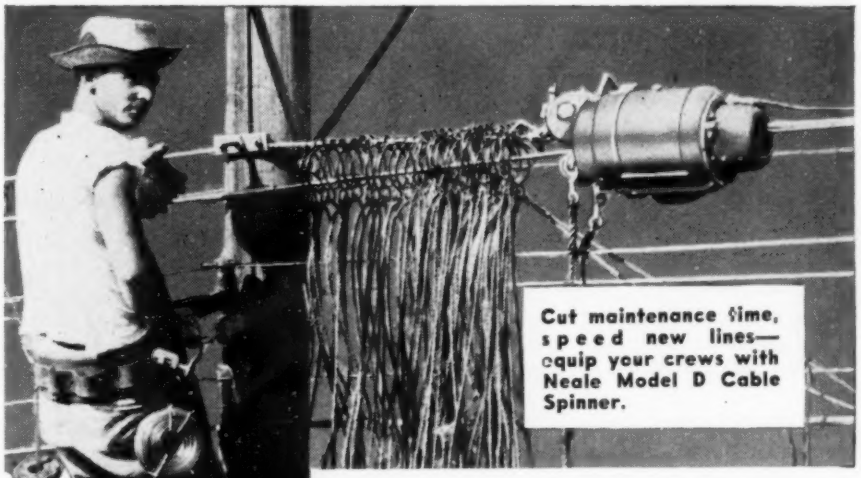
"That new-fangled gadget!" they snorted. "We don't want it. You ran one of your first telephone wires over our property," they explained bitterly to the president. "And we were proud to let you run it across. We've had one of your telephones ever since. But when you put that new-fangled gadget system in, you can take your telephone out."

"Now," declared Galloway, "T'wouldn't be no-wise fair to take out a telephone that's been with the company since the beginning. That telephone I put in here the first time, you couldn't hardly hear on, and if a night breeze blew across Florida, it was as apt as not to sing at you right through the wires, or shut off completely. You let me show you how to run this new dial contraption. And if you want to talk to somebody personal when you put through a call, you just don't bother about the contraption, except to dial that one little hole named "operator". You do that and she'll put through your call personal, just like before."

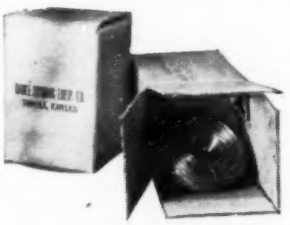
"There are three rules in a public utilities," explains Joe Galloway. "You've got to give people the service they need —that's what you're there for. And you've got to treat them all alike—that's only fair. And you've got to let them know what it is you're doing. It's their telephone—just like it's their home and their stove. You don't go messing around with it without telling them why and wherefore."

The company has more than doubled

(*Please turn to page* 64)



Neale Model B One Man Cable Spinner operates from ground or strand.



Cable Spinning Speeds Construction

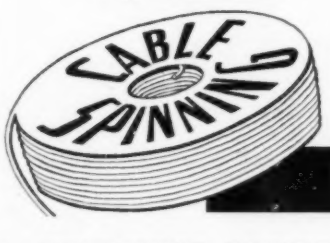
Cable spinning cuts maintenance costs two-thirds — that's why cost-conscious management everywhere is adopting cable spinning as standard procedure on new construction and line maintenance.

You'll find cable spinning fast, economical when your crews are equipped with Cable Spinning Equipment Company tools especially designed for the job.

For BEST RESULTS Use NEALE Wire!

Available in 7 different types and sizes, Neale Spinning Wire meets the toughest construction or corrosion problems. Famous Neale Aluminum wire threads easily, weighs two-thirds less than steel, resists corrosion better.

WRITE OR PHONE **your jobber for detailed information about Neale Cable Spinning Equipment—how it can save you money.**



EQUIPMENT CO.

TOPEKA, KANSAS Phone 3-1829

(Continued from page 33)

(3.) Trees killed by the chemical spray method become unsightly after they are dead and this sometimes results in serious objections from adjacent property owners who demand the dead growth be removed by the telephone company.

Characteristics of Chemicals Used

THE CHEMICAL used by utilities to control tree and shrub growth should meet the following requirements, viz: (1.) It should be one which is effective for the tree specie to be killed; (2.) It must be one which will not harm livestock or be toxic to humans, and (3.) It must not poison or sterilize the soil in any way.

Some chemicals used for weed and tree control are highly *selective* in their action. This is a desirable feature in connection with certain types of weed control particularly for weeds in growing where the chemical must kill the weeds yet not be harmful to the crop. But under a telephone pole line the objective is to kill all trees and shrubs, hence the *selective type killer* is normally not recommended, unless a single specie for which the selective chemical is particularly effective, is involved. Normally a non-selective killer which will prove effective against the majority of the trees and shrubs should be used.

Disadvantages of 2,4-D

A CHEMICAL which has been widely discussed in agricultural papers is 2,4-D. This is a powerful chemical with excellent killing action however it is classified as a *selective type*. It will give excellent results for certain trees and shrubs for which it is well adapted but may have little effect on other specie.

The experimental work of several state experimental colleges shows that 2,4-D is not suitable for such woods as soft maple, red bud, osage orange, certain oaks, hickories, and the green and white ash. Some of the wood specie for which 2,4-D has proven particularly effective (on growth of four feet and less) is alder, birch, box elder, wild cherry, cottonwood, elder berry, wild plum, and sumach. 2,4-D when used for tree control should be used in the 46% ester formulation.

Ammonium Sulfamate (Ammate)

EXPERIMENTAL work on the part of some of the leading commercial tree trimming companies as well as some of the southern agricultural experimental stations indicates that one of the best chemicals for use in controlling trees and shrubs under telephone and power leads is *Ammonium Sulfamate*. This is better known under its trade name of *Ammate*. Experiments have been going on for over four years with this chemical in widely separated sections of the country. The results have been excellent.

Ammate is more nearly non-selective in its action than some of the other chemicals. It will not harm livestock, or humans nor will it sterilize the soil. The action of Ammate is quite rapid and foliage sprayed with it will often turn brown and begin to wilt within a day or so after spraying. Complete wilting is often completed within two or three days. Killing is progressive first extending to the foliage, then the twigs, and down into the roots.

Ammate can be applied both as a spray and in the form of dry crys-

(Please turn to page 62)

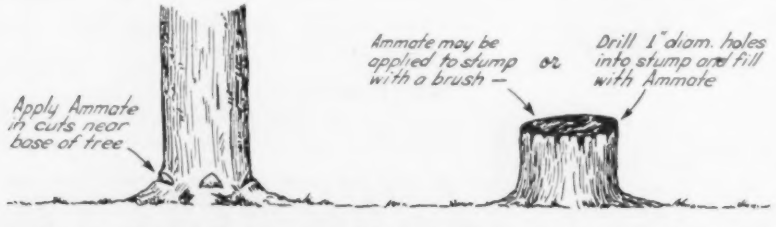
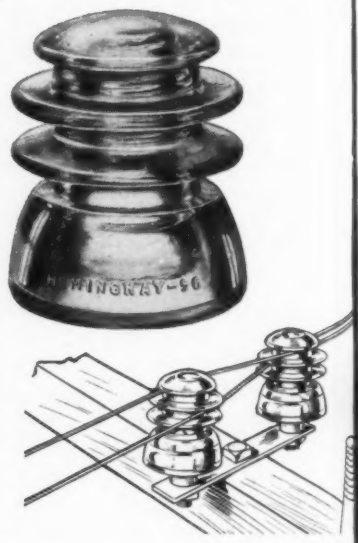

Apply Ammate in cuts near base of tree
Ammate may be applied to stump with a brush —
or
Drill 1" diam. holes into stump and fill with Ammate

Fig. 8—Two methods of applying ammate to large standing trees and freshly cut stumps.

STROM
number 56 . . .
low cost, but with t
high standards of
hemingray insulato

Hemingray's popular "Numb
53" now has a new, lower-pric
companion—Number 56. Like
larger counterpart, "56," wh
used in point transpositions,
quires no special hardware a
goes on standard pins.
Tested by the A.S.T.M. (meth
D-468-42), it meets the prod
specifications of utility compan
and maintains the high level
quality which has made all He
ingray insulators a standard
the communication industry.
Packed: 40 to a carton, weigh
59 lbs.
Manufactured by American Structura
Products Company
STROMBER
STROMBERG Telephone CARLSON
TELEPHONES, SWITCHBOARDS

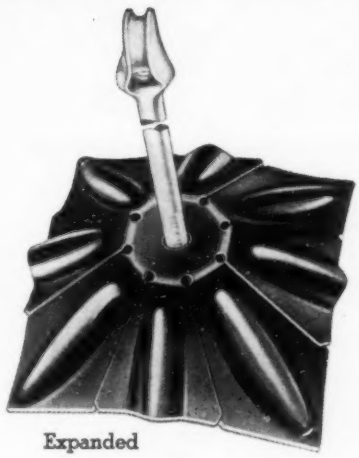
...BERG-CARLSON recommends...

more holding power for less money!

chance 8-way expanding anchors

The load is distributed over eight ribbed blades which expand to form a conical shaped square and pull against an inverted cone of earth — this means greater holding power. And the simplicity of design makes this anchor easy to expand. There are no moving parts, arms or mechanical devices to hinder smooth operation.

Mfd. by A. B. Chance Co.



Expanded

crapo high-tensile line wire

Reduces Over-all Costs

A net saving of 10 to 15 or more pole structures per mile is possible where *Crapo* High-Tensile Telephone Line Wire is used in long-span construction. Fewer pole structures mean substantial savings in time, labor and material, and in maintenance.

Crapo HTL-135 makes possible spans of 350 feet in heavy, 450 feet in medium, and 500 feet in light loading areas. Its practical economy should be considered for new extensions and where old lines are to be replaced.

Crapo HTL-85 (No. 12 B. W. G.) permits spans of 225 feet in heavy, 325 feet in medium, and 375 feet in light loading districts; provides stronger spans on existing pole structures. Both wires possess superior telephonic transmission qualities.

Write for Manual of Engineering Data and Construction Practices for *Crapo* High-Tensile Telephone Line Wire!

... dependable battery charging with the

raytheon recticharger*!

A small storage battery floated across the terminals of a Raytheon Recticharger provides closely stabilized DC voltage . . . longer battery life . . . and improved operation of manual or automatic telephone systems.

These are *proven* advantages that stem from exclusive design and long service to the telephone industry.

When replacing, expanding, or modernizing switchboard equipment, utilize Raytheon's extensive field experience and complete line. Available from 1.0 to 24.0 amperes with either 24 or 48 volt output.

*Reg. U. S. Pat. Off.

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Factory, General Offices: Rochester 3, N.Y.
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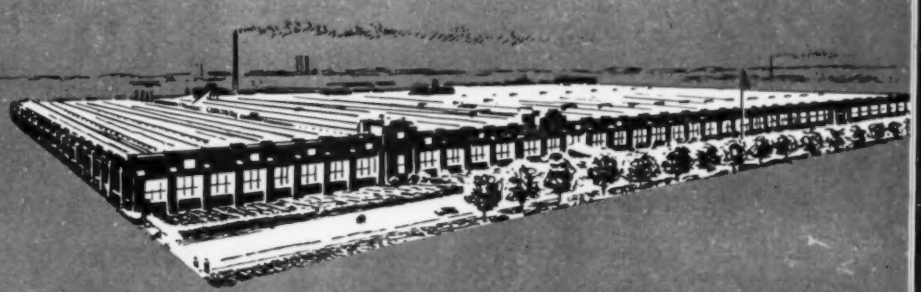


...PMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISIC

tals. It can be applied in the form of crystals to cuts made in standing trees or in the case of large trees which are to be cut down, to the freshly cut stumps. When used as a spray, Ammate should be applied during the time when the foliage is fully developed and green. Poor results will be obtained if spraying is done too early in the spring or too late in the fall. Spraying should not be done just before a heavy rain, however, the action of Ammate is remarkably rapid and surprisingly good results have been obtained even though rain follows within a few hours after spraying.

Experiments have shown that the best killing action results when the trees have an abundance of foliage to receive the chemical and carry it into the root structure. If large trees have been cut down and it is desired to kill the roots it is better to let the sprouts reach a fair height and attain considerable foliage before spraying them. Late summer spraying on shoots of trees cut down in the spring is much more effective than an early summer spray. (See Figure 9).

Fig. 9—Spray when foliage is green and has attained maximum seasonal growth.

The effectiveness of an Ammate spray and a tribute to its non-selective action is the fact that experiments in the south have shown as high as 80% to 90% kill with a single application. Even though some species are not killed with the first application it should be economically feasible to high spot a lead with a different type of chemical to catch shrubs and trees not killed by the initial application of the "non-selective" chemical.

Heighth of Growth

IT HAS been found that chemical killers are most effective on growths which are not in excess of 6 feet in height. This should not be construed to mean that chemicals or chemical spray methods can not be used to advantage on the taller growths. Some commercial tree "expert" companies are now reporting good results on growths up to 20 feet. But the taller growths require substantially more chemicals, greater care in application, and the killing action is somewhat slower.

One difficulty in spraying tall growths is the need for high-pressure large-volume outputs with consequent danger of drift into adjacent crops or shade trees. One tree trimming company points out that the taller trees do not disintegrate rapidly after the roots have been killed with the result that they are unsightly and objectionable to property owners.

To be concluded in the July issue of TELEPHONE ENGINEER AND MANAGEMENT. The concluding installment discusses "Crowning With Sprays," "Cost of Spraying Program," and "Spray Equipment."

HELLO | May Go By-By!

THE TELEPHONE company in New York City is waging once more its old and heretofore unsuccessful battle of trying to break people of the habit of merely saying "hello" when they answer the telephone.

Here's hoping the company's campaign has some success and that it spreads throughout the country.

Think of the great saving in seconds, minutes and hours if people would learn to begin their conversations with something other than the useless "hello."

The army and navy have simple ways of insuring such good use. "Headquarters, First Flying Saucer Defense Command, Sergeant Zilch speaking" for example, is a mandatory usage. Sergeant Zilch answers the prescribed way or else.

It is a pity sometimes that civilian usage cannot be enforced in like manner.

It's actually not only time-consuming but discourteous not to precede a conversation with identification. The British have the right system.

"Smith here," says the Englishman answering the telephone, although he sometimes goes on to spoil it with an asinine "are you there?"

Most discourteous of all is the party who calls, asks if another person is present to answer the phone and when told "no", hangs up without stating who called. This leaves the person who was being called in a complete state of unsatisfied curiosity when informed there was a telephone call for him from an unknown source. This sort of thing has been known to drive persons close to nervous breakdowns as they continue wondering who on earth could have called.

The telephone properly used is a marvel of communication. Improperly used it is modern civilization's greatest time-consumer and time-waster and an instrument of torture.

Let's begin all our telephone conversations with a simple—"This is John Smith calling. And don't give me any of this hello stuff. Who the heck are you anyway? Let me speak to the manager."

In such a fashion everyone will soon be mad at everyone else, but at least the useless word "hello" won't be maltreating the telephone.

Breakdown Equipment

(Continued from page 39)

to the crossed conductors or between ground and the grounded conductor.

A cable pair may be both grounded and shorted, crossed and shorted, or both, and grounded. In this case, if connection to two affected points will not result in a satisfactory breakdown, the high voltage may be applied between other affected points. In this way, it may be possible to obtain a reasonably solid fault that will pass tone current. Reversing the test clips may effect a breakdown that could not be obtained otherwise.

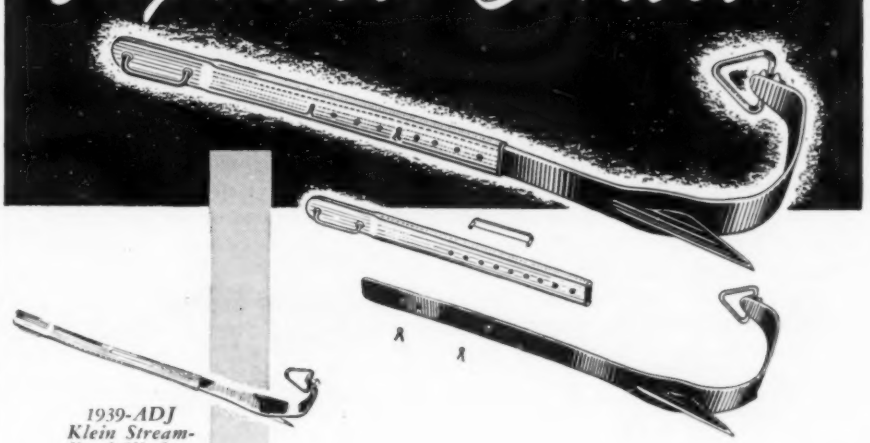
Quick Location of Faults

The writer has observed the operation of the breakdown equipment in several cases and has noted that in each instance only a short time was required to locate the fault. In the first trial of the shop-built unit, four difficult cases of wet cable faults were located within almost as many hours. Previously, anywhere from three days to a week might have been required to locate *one* such fault. The equipment thus paid for itself many times over.

Cable splicers who have been using the breakdown equipment for sometime state that they have been able to get positive breakdowns in 90 percent of the cases. Where failure to obtain breakdown has occurred, it was often due to the fact that new cable with heavy gauge conductors was involved. Evidently the paper insulation on the conductors was in too good condition to be easily ruptured in the breakdown attempts. A supplementary battery of five 45-volt units may be employed to increase the voltage to a maximum of 675 to break down such faults.

A word of caution in regard to the B batteries is considered desirable. These batteries should be replaced when the open circuit voltage has dropped to less than 400 volts. Beyond this point, the batteries will not sustain their voltage and the breakdown test will not be successful. When not in use, the breakdown set should be stored in a cool place to preserve the batteries as much as possible.—THE END.

KLEIN
Adjustable Climbers



1939-ADJ Klein Streamlined Climbers

1901-M-ADJ Klein Standard Climbers

1903-ADJ Klein Lightweight Climbers

1945-ADJ Klein "Polemaster" Climbers Matched right and left

Adjustable climbers do away with the necessity of stocking many sizes. They assure proper fit both in summer when light shoes are worn and in winter when heavy overshoes are needed.

Klein Adjustable Climbers are made of forged steel, individually tempered and tested—the same high quality that has always been associated with the name Klein. Adjustable sleeve is seamless, one-piece construction, permitting climber to be adjusted to 15, 15½, 16, 16½, 17, 17½, and 18 in. sizes. It is secured to the shank of the climber by a steel bracket engaging through two holes and is secured with cotter pins. Write for Bulletin giving full information.

ASK YOUR SUPPLIER
Foreign Distributor: International Standard Electric Corp., New York

This Bulletin giving complete information on Klein Adjustable Climbers will be sent on request.

Mathias KLEIN & Sons
Established 1857
Chicago, Ill., U.S.A.
3200 BELMONT AVE. CHICAGO 18, ILL.

News Briefs

(*Continued from page* 59)

in size since 1940, expects to double its 1945 size by the end of this year. It's been a race, trying to keep up.

But the company has always managed to keep up, in spite of its phenomenal growth. During the war, it grew 25 per cent, but its waiting list for telephones never reached 200. Today that waiting list is 123, but except for about 23 phones in outlying areas, the list will disappear shortly after the new system is put in with its added equipment.

It's always managed to keep up, and it's "never passed a dividend or failed an obligation," Exec. Vice Pres. Joe declares.

D. M. Davis Purchases Pierce, Neb., Exchange

Mr. and Mrs. D. M. Davis and Mr. and Mrs. Jack E. Davis, recently purchased the Pierce (Neb.) Telephone Co. from Mr. and Mrs. R. E. Dutcher who have owned and operated the company for nearly 35 years.

Mr. Davis submitted his resignation to August Ernstmeier, president of the Hamilton County Farmers Telephone Association, March 31. The effective date of the resignation has been left open for the present. The Davis's take possession of the Pierce Company October 1.

Mr. Davis came to Aurora in 1929 as secretary-treasurer of the telephone company and became manager in March 1931. He is now serving his fifth consecutive three year term as director of the Nebraska Telephone Association and is a past president of the association.

New Company Formed At Hollandale, Wis.

The Hollandale (Wis.) Co-operative Telephone Co., has recently been organized to purchase the stock of six rural companies that are switched through the Hollandale exchange.

William Lauper has been named president of the new company. Other officers are Joseph Oimoen, vice-president; Frank Ryan, secretary- treasures, and Lillian Stroud, operator.

J. P. Walters Dies Following Heart Attack

J. P. Walters, 69, general sales manager for the Iowa Electric Light & Power Co., Cedar Rapids, Iowa, died May 15.

Mr. Walters also was an executive of the Central Iowa Telephone Co., a director of the Iowa Independent Telephone Association and one of the owners of the Central Iowa Grain Co.

Born October 3, 1879, in Toledo, Iowa, he was educated in the Toledo schools, Cornell college and the University of Chicago. He started his career in public utilities in 1906 with the Tama & Toledo Light & Power Co., which was owned by his father, the late William C. Walters. That company was sold to Iowa Electric Light & Power in 1912.

J. P. WALTERS

Mr. Walters was a charter member of the Tama-Toledo Golf Club, a past president of the Toledo Commercial Club and past president of the Toledo school board. He was a member of the Methodist Church, the Masonic lodge, Scottish Rites, the BPOE, Chicago Lake Shore Club and the Des Moines Club.

In addition to his wife, the former Jessie Crawford, he is survived by a son, John, of Kansas City; two daughters, Helen Walters of Chicago and Mrs. Robert Amidon of Omaha, Nebraska, and a granddaughter.

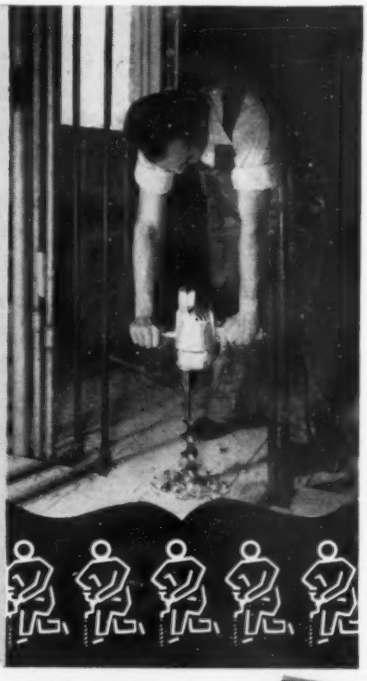
V. Higginbotham Buys Walnut, Kansas, Exchange

Vernon Higginbotham recently purchased the telephone exchange at Walnut, Kan. Mr. Higginbotham has been employed by the Seneca (Mo.) Telephone Co. for several months.

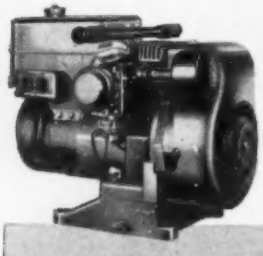
1 MAN CAN DO THE WORK OF A CREW...

with an

ONAN PORTABLE ELECTRIC PLANT



Use fast-working, cost-cutting electric tools on every job. Lightweight, Onan air-cooled, engine-driven electric plants supply instantly-available power *anywhere* for lights, drills, saws, pipe-threaders, planers, spades, and tampers. Carry 'em, wheel 'em, or truck 'em right to the spot and plug-in for all the power you need. Equipped with carrying handles or dolly-mounted.



A.C. Models: 350 to 35,000 watts.

D.C. Models: 1200 to 15,000 watts.

Diesel Plants: 2,500 to 55,000 watts.

Send for Catalog

ONAN ELECTRIC PLANTS

Onan

D. W. ONAN & SONS INC.
5906 Royalston Ave., Minneapolis 5, Minn.

Send your catalog on Portable Electric Plants

NAME_____

ADDRESS_____

CITY_____ STATE_____

Copperweld Names New Officials

The Copperweld Steel Co., Glassport, Pa., has announced the election of

MAURICE J. MAHONEY elected secretary of Copperweld Steel Co.

Maurice J. Mahoney as secretary of the company and Charles A. Taylor as controller.

Mr. Mahoney joined Copperweld in 1941 as attorney and tax officer. A graduate of Georgetown University Law School, Mr. Mahoney formerly held tax and legal positions in the De-

CHARLES A. TAYLOR elected controller of Copperweld Steel Co.

partment of Justice, Washington, D. C.

Mr. Taylor became associated with Copperweld as assistant controller on September 1, 1939. For 13 years prior to joining the Copperweld organization Mr. Taylor was an internal revenue

(*Please turn to page* 68)

ALPHADUCT WIRES

FOR *All* TELEPHONE REQUIREMENTS

LONG LIFE

Neoprene Jacketed
Drop and Bridle Wire

Weatherproof Braided Drop and Bridle
Interior - Tree - Ground - Switchboard -
Pothead - Cable Terminal - Instrument

Manufactured and Tested to Rigid Specifications

ALPHADUCT WIRE & CABLE CO.

Milltown, New Jersey Telephone: Milltown 8-0030

CREWS WORK FASTER,

Safer **with COFFING**

SAFETY-PULL HOISTS

Stretch guys or cables, lay conduits, do all pulling and lifting — quickly, easily, *safely*. Coffing Safety-pulls are light and compact for easy handling—chain is "free wheeling" when not under load. Coffing design speeds work, yet gives extra protection to equipment and crews:

1. Factory tested at 100% over rated capacity. "Safety valve" handle avoids dangerous overloading.
2. Dual ratchet and pawl assembly cannot slip or drop load.
3. Stops prevent spinning of handle if operator's hand slips off.

Nine Models — 1500 to 30,000 lbs. capacities. Write for bulletin U6SP

MIGHTY MIDGET pulls 500 lb., weighs only 6½ lb. Two-way handle is either a lever or high-speed crank. Ask for bulletin U6MP.

COFFING HOIST COMPANY • Danville, Ill.

QUIK-LIFT ELECTRIC HOIST—HOIST JACK—SPUR-GEARED HOISTS

DIFFERENTIAL CHAIN HOISTS—LOAD BINDERS

vox popular

It takes more than equipment to provide *good* telephone service.

It takes some intangibles, too, such as courtesy and "the voice with a smile."

This advertisement appears in national magazines in June. It expresses appreciation to telephone people who give the service and to the public for its co-operation to make good service *better*.

AN ADVERTISEMENT OF THE BELL TELEPHONE SYSTEM

"The Voice with a Smile"

"Hail ye small, sweet courtesies of life, for smooth do ye make the road of it."

Often we hear comments on the courtesy of telephone people and we are mighty glad to have them.

For our part, we would like to say a word about the courtesy of those who use the telephone.

Your co-operation is always a big help in maintaining good telephone service and we want you to know how much we appreciate it.

BELL TELEPHONE SYSTEM

YORK-HOOVER

Service Bodies *SAVE MONEY* for YOU because

Model 2040

York-Hoover Line Service Bodies, for installation on ¾-1 ton chassis, are provided with complete working equipment.
Years of study and engineering experience have indicated the most adequate body interior arrangements so that all necessary service materials and tools are at the service men's fingertips.
There is a York-Hoover body design to meet your particular requirements and we will be happy to give you all details.

Write now for the York-Hoover "Public Utility" catalog.

1. All-metal body structure is balanced to produce minimum weight.
2. Exclusive body framework and assembly details result in many extra years of service.
3. Construction includes replacement parts study for maintenance economy.
4. Details of convenience for driver and garage personnel carefully considered.
5. Your body is engineered for your specific job — and yours alone.

YORK-HOOVER BODY DIVISION CORPORATION

YORK, PENNA

agent with the United States Treasury Department. He was graduated from Drexel Institute in 1925.

A. B. Chance Co. Completes New Factory Building

Construction has recently been finished on a new factory building for the A. B. Chance Co., Centralia, Mo. Its 40,000 square feet of floor space house a machine shop, kiln room, test enclosure, assembly and storage areas for manufacturing Switches, Cutouts, Fuses and Hot Line Tools. Items of interest in new machine shop equipment which maintain Chance precision machining standards are the automatically controlled electrocycle lathe and drill press with micrometer adjustment table.

Automatic Electric Announces New Multi-Line Telephone

A new multi-line telephone, designated as the Type 47 Monophone, has been announced by Automatic Electric Co., Chicago. Offering a broad range of features and services which are particularly useful in business and professional offices, this versatile telephone has full facilities for answering, holding, and switching on two lines, plus signaling or switching on an extension or third circuit.

New Type 47 Monophone announced by Automatic Electric Co.

The various services are controlled by push type switching keys, mounted within a standard Type 40 Monophone base, and with interlocking features which prevent any possibility of double connections or other misuse.

Unlike many multi-line telephones, the Type 47 requires no auxiliary relays or other external control apparatus; all controls are provided by the push keys with their interlocking linkages.

Two pairs of "Answer" and "Hold"

(*Please turn to page* 70)

FOR THESE 3 APPLICATIONS...

GraybaR recommends WHITNEY BLAKE

For wire that's built specifically for the job . . . wire that must give long service even when subject to weather extremes, chemical fumes, abrasion, and moisture, get W-B wire from Graybar. Whitney Blake developed these outstanding products as a result of careful study, laboratory research, and field tests. Our long experience in supplying the telephone and railway fields with W-B wire has convinced us that substantial savings in maintenance costs are made through its long life.

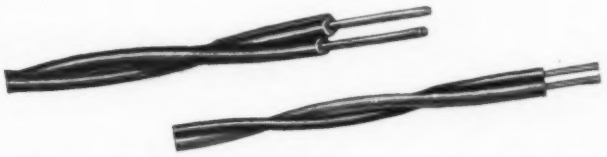
A Single Source for Everything Electrical

In addition to wire, Graybar distributes hundreds of other telephone supplies. From fuses to switchboards . . . poles to insulator pins . . . tools to cable terminals . . . all are first quality products of leading manufacturers.

Whatever your construction or maintenance requirements, you can get everything from near-by Graybar. A Graybar Telephone Specialist can help you solve any particularly knotty problems. Your regular Graybar representative is on hand to supply you with information on wiring, signaling, lighting or power installations.

4937

EXTERIOR BRIDLE, DROP, DISTRIBUTING WIRE — *Use W-B Teleprene.* Jacketed with a flame-resistant, tire-tread type Neoprene jacket, Teleprene out-performs other similar covered wires. Teleprene conductors are "Teleplated." This method of bonding the copper to the jacket gives enduring adhesion equal to the tensile strength of the conductor itself. Temperature extremes do not affect the strength or flexibility of Teleprene. A ridged tracer is molded into the jacket to assure quick, positive polarity identification.



INSIDE OR DISTRIBUTING FRAME WIRE — *Use W-B Plastite.* A soft copper conductor insulated with a tough molded plastic jacket, it is ideal inside for wiring and for wiring distribution frames and cross-connecting racks. The rugged jacket is high in dielectric strength. It is available in brown, ivory, and in black-and-red twist.

UNDERGROUND INSTALLATIONS — *Use W-B Teleseal.* A special water-resistant jacket for low-voltage installations. For direct burial underground even where water or dampness is ordinarily a problem. Teleseal's hard copper conductors are coated with lead and brass, by the Teleplate process to give utmost corrosion resistance and lasting insulation adhesion. The tough Neoprene jacket bears a double-ridged pole tracer. Teleseal is stable in operation even after long periods under water. The low moisture absorbing insulation results in low transmission losses at telephone frequencies.

IN OVER 100 PRINCIPAL CITIES

keys—one pair for each line—are provided at the front of the base, just below the dial. These keys permit the user to answer or initiate a call on either line, to hold a call on either line while using the other, and to switch back and forth between the two lines at will.

Just above the dial, and to the right, there is a third push key which is available for a wide variety of useful auxiliary services. This push key, which has three positions, may be arranged to provide any of the following services:

(1) Secretarial exclusion, or disconnection of an extension telephone, while the Type 47 Monophone is in use.

(2) Secretarial exclusion or disconnect which is independent of use of the Type 47 Monophone.

(3) The operation of auxiliary signals—bells, buzzers, lights, etc.

(4) Answering and holding facilities on a third telephone line, when needed.

Included within the base of the Type 47 Monophone is one ringer, which may be connected to any of the three lines. Ringers or other types of signals for the other two lines are externally mounted.

This new telephone meets the steadily increasing need in business and professional offices for a single telephone which may be connected at will with any of two of three separate lines. Its "holding" feature provides valuable "double track" facilities. When used by executives, secretaries and receptionists, it adds to office efficiency by replacing two or three conventional telephones, eliminating the need for separate switching keys, and avoiding the disorder of tangled cords and crowded desk tops.

New Address for Chance Atlanta Office

The A. B. Chance Co. has changed the location of its Atlanta office to 311 Candler Building, Atlanta 3, Georgia. The new telephone number at this office is Alpine 9822.

This office is headquarters for the Company's Southeast Division manager, W. A. Moss.

Copperweld Makes New Appointments

William J. McIlvane, executive vice president in charge of Copperweld Steel Company's Wire & Cable Division, Glassport, Pa., has announced the appointment of William W. Ege

WILLIAM W. EGE

to the newly-created position of vice president-sales.

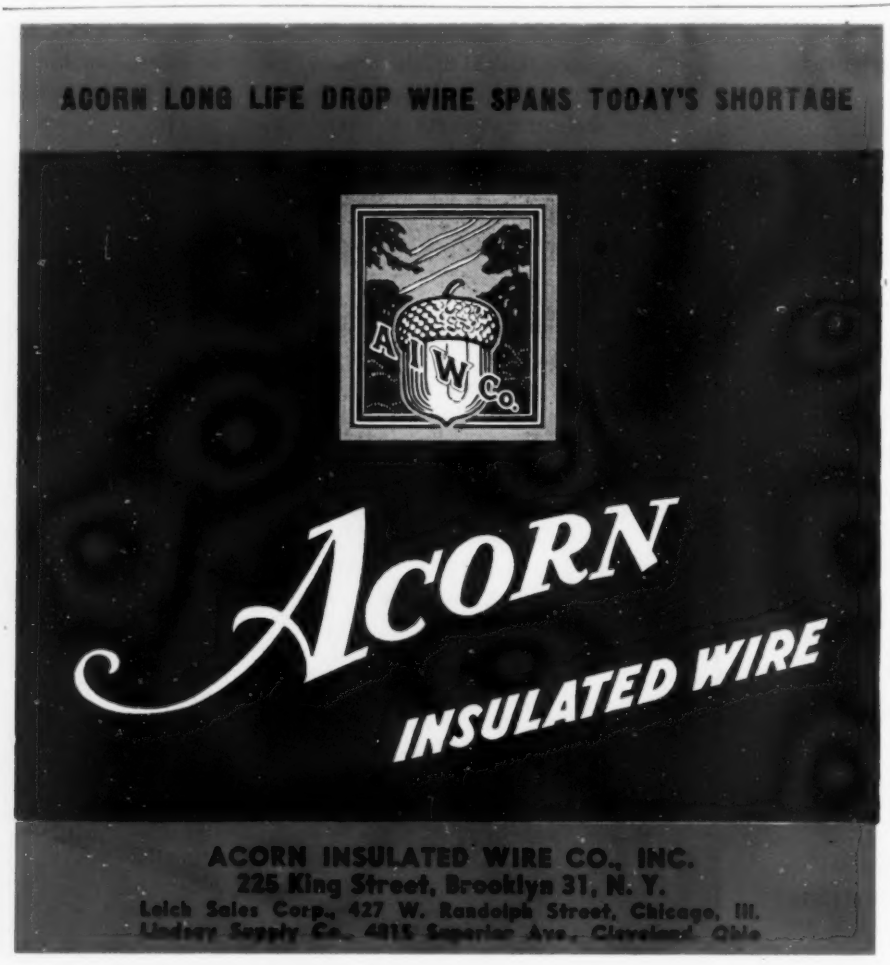
Mr. Ege, active in the power, railroad and communication fields throughout the United States, has wide sales and engineering experience. He was general manager of sales and prior to that was located in the company's Chicago office in charge of Western District Sales.

Other promotions, announced at the same time by Mr. McIlvane, involve F. E. Leib, who was appointed assistant to vice president-sales, and P. A. Terrell, who was elevated to assistant vice president.

Mr. Leib, formerly assistant general manager of sales, was Copperweld's representative in Washington, D. C., for several years prior to 1944. Before that he was development engineer at Glassport.

Mr. Terrell was assistant to the

F. E. LEIB


ACORN LONG LIFE DROP WIRE SPANS TODAY'S SHORTAGE
AIWCo.
ACORN
INSULATED WIRE
ACORN INSULATED WIRE CO., INC.
225 King Street, Brooklyn 31, N. Y.
Leich Sales Corp., 427 W. Randolph Street, Chicago, Ill.
Lindsay Supply Co., 4815 Superior Ave., Cleveland, Ohio

P. A. TERRELL

executive vice president. Before making Glassport his headquarters, he served in important sales and engineering capacities in Washington and Atlanta. In the latter location, he was manager of Copperweld's Southern sales district.

Hubbard & Co. Advances Leonard P. Schafer

Hubbard & Co. have announced the promotion of Leonard Schafer to the position of assistant sales Manager, Chicago Factory territory.

Mr. Schafer started with Hubbard & Co. 24 years ago and spent six years in the service department, most of this

LEONARD P. SCHAFER

period as manager.' In 1931 he went into the Ohio and south-eastern Michigan territory as sales engineer and was made district manager in 1941. He brings to his present job, 24 years of Hubbard pole line hardware experience.

PENTA POLES

FULL LENGTH TREATED NORTHERN WHITE CEDAR

Their long life assures low per annum cost lines.

P&H

PAGE AND HILL, INC.

MINNEAPOLIS, MINNESOTA · 50 CHURCH STREET, NEW YORK, N. Y.

Distributed by AUTOMATIC ELECTRIC SALES CORPORATION STROMBERG-CARLSON COMPANY "STILL IN THE LEAD"

The Handy Hotel In Fort Worth

You get more than excellent living and cordial service at The Worth Hotel. You get convenience of location too.

You'll like being in comfortable walking distance of the places you'll most likey visit—such as:

Department Stores—3 Blocks Average
Banks—3 Blocks Average
Office Buildings—2½ Blocks Average
Medical Arts Building—3 Blocks
Theatres (First Run)—1 Block

Please write, wire, or phone for reservations—and allow us time for confirmation. If your plans are changed, please release your reservation.

JACK FARRELL
Manager

The Worth Hotel
Aglow with Western Hospitality

ADDITIONAL Information on New Products or Service and Supplies of any Advertiser listed in this section may be promptly obtained by filling out the handy request for more information reproduced on the opposite page. All items are numbered. Check number of items on which more information is desired and send to Telephone Engineer Publications. Kindly mention Telephone Engineer Publications when contacting advertiser direct.

the New Products Showcase

New Products & Supplies of Practical Interest

ADVERTISING, Directories—L. M. Berry & Co., 637 Telephone Building, Dayton, Ohio.—[ADV. 3]

ADVERTISING, Directories—General Telephone Directory Co., 604 Pine Ave., Long Beach, Cal.—[ADV 4]

ADVERTISING, Directories—Loomis Advertising Company, 20 W. 9th St., Kansas City 6, Mo.—[ADV. 5]

ANCHORS, Albion Malleable Iron Company, Albion, Mich.—[ADV. 5a]

ANCHORS—A. B. Chance Co., Centralia, Mo.—[ADV. 6]

ANCHORS—James R. Kearney Corp., 4224 Clayton Ave., St. Louis, Mo.—[ADV. 7]

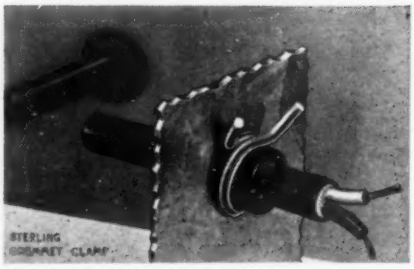
BATTERIES, Dry Cell—National Carbon Co., Inc., 30 E. 42nd Street, New York 17, N. Y.—[ADV. 8]

BATTERIES, Dry Cell—The Ray-O-Vac Company, 2317 Winnebago St., Madison, Wisc.—[ADV. 9]

BELTS — CLIMBERS — COMPLETE LINEMENS' EQUIPMENT, W. H. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.—[ADV. 10]

BELTS—CLIMBERS—COMPLETE LINEMENS' EQUIPMENT, Buckingham Manufacturing Co., 7-9 Travis St., Binghamton, N. Y.—[ADV. 11]

Unique, lightweight, non-corroding, sturdy steel "positive-grip" Lantern "Viateer", reduces lantern breakage and theft. The Lantern "Viateer" design incorporates a heavy gauge steel platform, approximately 4" wide by 7" long, with three upright reinforced welded steel clamps, (1 spring-locking type), to grip the lantern base firmly and securely and keep the lantern upright. On each of the 4" sides of the platform is a 13" long rigid vertical steel rod. Each rod is adjustable to three positions, ie., vertical, 45 degree angle, and horizontal, assuring an upright position for the lantern no matter where it is set. The overall height of "Viateer" is approximately 19", and the overall width is approximately 10".—Check NP132.



"Grommet Clamp," a new, patented ring-type spring clamp, is designed for assembly over the neck of a resilient grommet or bushing so as to exact an even pressure through the walls of the gromet or bushing forcing their surfaces to constrict on the material held within them.

It is claimed the Grommet Clamp's grip is so intense that it withstands a direct pull generally in excess of the weight of the article to which it is assembled. A rubber cable held by a Grommet Clamp is not distorted in any way and may be used over and over again, facilitating easy servicing of terminal connections or other repairs. Substantial savings in labor and unit costs are said to be made possible.—Check NP133.

BELTS—CLIMBERS—SAFETY STRAPS, M. Klein & Sons, 3200 Belmont Ave., Chicago 18, Ill.—[ADV. 12]

BOLTS, Expansion—Star Expansion Bolt Co. 147 Cedar Street, New York, N. Y.—[ADV. 13]

CABLE, Plastic Jacket—The Ansonia Electrical Co., Subsidiary of Noma Elec't Corp., Ansonia, Conn.—[ADV. 14]

CABLE STRIPPERS—The Taca Company, 4307 Raynol Street, Los Angeles 32, Calif.—[ADV. 15]

CABLE SPINNING—The Cable Spinning Equipment Company, 432 Crane St., Topeka, Kans.—[ADV. 16]

CABLE TERMINALS—Channell Splicing Machine, 2415 Roanoke Rd., San Marino, Calif.—[ADV. 17]

CORDS, Switchboard & Telephone—Commercial Cord & Supply Co., Clifton Springs, N. Y.—[ADV. 18]

CORDS, Switchboard & Telephone—Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.—[ADV. 19]

ELECTRICAL MEASURING INSTRUMENTS—W. C. Dillon & Co., Inc., 5410 W. Harrison St., Chicago 44, Ill.—[ADV. 20]

ENGINEERING, Construction—Neale Construction Company, 432 Crane St., Topeka, Kans.—[ADV. 21]

FIRE POTS, FURNACES, Etc.—Clayton & Lambert Mfg. Co., 1701 Dixie Highway, Louisville 10, Ky.—[ADV. 22]

FIRE POTS, FURNACES, Etc.—The Turner Brass Company, 823 Park Ave., Sycamore, Ill.—[ADV. 23]

INSULATORS, Porcelain—Porcelain Products, Inc., Box 300, Findlay, Ohio.—[ADV 24]

INSULATOR TIES—Copperweld Steel Company, Glassport, Pa.—[ADV. 25]

MOTOR GENERATORS—D. W. Onan & Sons, Minneapolis, Minn.—[ADV. 26]

PIPE PUSHERS—Giant Manufacturing Co., South 6th St. at 12th Ave., Council Bluffs, Iowa.—[ADV. 27]

POLES, So. Yellow Pine—Koppers Company, Inc., Wood Preserving Div., 700 Koppers Bldg., Pittsburgh 19, Pa.—[ADV. 28]

POLES, Northern White Cedar—Page & Hill Co., 1017 Plymouth Bldg., Minneapolis, Minn.—[ADV. 29]

POLES, Southern Yellow Pine—Taylor-Colquitt Company, 290 E. Main St., Spartanburg, S. C.—[ADV. 30]

POLES, Southern Yellow Pine—Texas Creosoting Co., Orange, Texas.—[ADV. 31]

POLE HOLE DIGGERS, Power—Highway Trailer Company, Edgerton, Wis.—[ADV. 32]

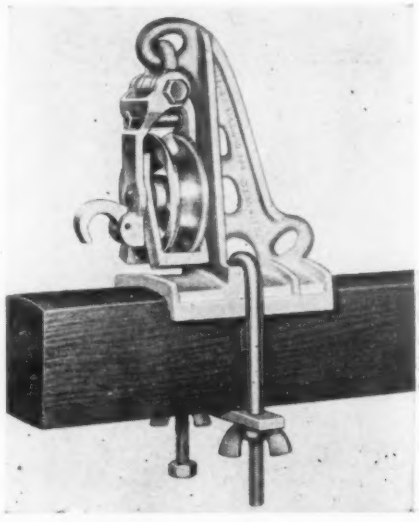
POLE HOLE DIGGERS, Power—Kamo Tools, 2117 South Troy St., Chicago 41, Ill.—[ADV. 33]

POLE HOLE DIGGERS—For derrick mounted trucks. Tel-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.—[ADV. 34]

POLE LINE HARDWARE—Hubbard & Co., 6301 Butler St., Pittsburgh, Pa.—[ADV. 35]

POLE LINE HARDWARE—Oliver Iron & Steel Corp., S. 10th & Muriel St., Pittsburgh 3, Pa.—[ADV. 36]

PRESERVATIVES, Wood—Barrett Div., Allied Chemical & Dye Corp., 40 Rector St., New York.—[ADV. 37]



Pieper-Lillard Lay-up Gin eliminates a hazardous operation for the worker and makes the entire wire-stringing job easier and quicker. The entire job of lifting the conductor from the ground and around arm end and its placement directly onto the insulator is done by the man on the ground.—Check NP134.

and BUYERS' DIRECTORY

Manufacturers and Suppliers Serving the $8,000,000,000 Telephone Industry

The RCD concrete drill bits range in sizes from 1/4" to 2". The drill bits are handmade from high grade steel with heat treated special carbide cutters set in and brazed to the blunt end of the bit shaft. The unique blunt end design of the RCD drilling bits enables them to drill right through gravel or rounded rocks in concrete rather than being deflected around them.—Check NP135.

PRESERVATIVES, Wood—Koppers Co., Inc., Wood Preserving Div., 700 Koppers Bldg., Pittsburgh 19, Pa.—**[ADV. 38]**

PROTECTIVE EQUIPMENT—Cook Electric Company, 2700 Southport Ave., Chicago 14, Illinois.—**[ADV. 39]**

PROTECTIVE EQUIPMENT—Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.—**[ADV. 40]**

SLACK PULLERS—Coffing-Hoist Co., 800 Walter St., Danville, Ill.—**[ADV. 41]**

REBUILT TELEPHONE EQUIPMENT—USED EQUIPMENT BOUGHT AND SOLD—Independent Telephone Repair Co., 1432 W. 15th St., Chicago 8, Ill.—**[ADV. 42]**

REBUILT TELEPHONE EQUIPMENT—Suttle Equipment Company, Lawrenceville, Ill.—**[ADV. 43]**

REBUILT TELEPHONE & SWITCHBOARDS—Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.—**[ADV. 44]**

RECTIFIERS—Raytheon Manufacturing Co., 190 Willow St., Waltham 54, Mass.—**[ADV. 45]**

RECTIFIERS—Schauer Machine Company, 2060-68 Reading Road, Cincinnati 2, Ohio—**[ADV. 46]**

RODS, Anchor—A. B. Chance Company, 210 N. Allen St., Centralia, Mo.—**[ADV. 47]**

SOLDERING IRONS, Electric—Vulcan Electric Company, 88-90 Holten St., Danvers, Mass.—**[ADV. 48]**

SWITCHBOARDS, TELEPHONES, Etc.—Automatic Electric Company, 1033 Van Buren St., Chicago 7, Ill.—**[ADV. 49]**

SWITCHBOARDS, TELEPHONES, Etc.—Kellogg Switchboard & Supply Company, 6650 Cicero, Chicago 38, Ill.—**[ADV. 50]**

SWITCHBOARDS, TELEPHONES, Etc.—Leich Sales Corp., 427 W. Randolph St., Chicago, Ill.—**[ADV. 51]**

SWITCHBOARDS, TELEPHONES, Etc.—The North Electric Manufacturing Company, Galion, Ohio.—**[ADV. 52]**

SWITCHBOARDS, TELEPHONES, Etc.—Stromberg-Carlson Company, 100 Carlson Road, Rochester, N. Y.—**[ADV. 53]**

TIME RECORDERS—Calculagraph Co., 306 Co., 306 Sussex St., Harrison, N. J.—**[ADV. 54]**

TREE EXPERTS—Davey Tree Expert Co., Kent, Ohio.—**[ADV. 55]**

TREE TRIMMERS—Seymour Smith & Son, Inc., Oakville, Conn.—**[ADV. 56]**

TRUCK BODIES—Artisan Products, Inc., 3540 West 140th St., Cleveland 11, Ohio—**[ADV 57]**

TRUCK BODIES—Highway Trailer Co., Edgerton, Wisc.—**[ADV. 58]**

TRUCK BODIES AND EQUIPMENT—McCabe Powers Auto Body Co., 5900 N. Broadway, St. Louis 15, Mo.—**[ADV. 59]**

TRUCK BODIES—Body Division, York-Hoover Corporation, York, Pa.—**[ADV. 60]**

WIRE, Insulated Drop—Alphaduct Wire & Cable Co., P. O. Box 69, Milltown, N. J.—**[ADV. 61]**

WIRE, Insulated Drop, Genuine Ironite—Paragon Electric Co., Two Rivers, Wis.—**[ADV. 62]**

WIRE, Insulated Drop—The Whitney Blake Co. P. O. Box K. Hamden, New Haven 14, Conn.—**[ADV. 63]**

WIRE, Insulated Drop Copperweld—Copperweld Steel Company, Glassport, Pa.—**[ADV 64]**

WIRE, Insulated Drop and Bronze—Acorn Insulated Wire Co., Inc., 225 King St., Brooklyn 31, N. Y.—**[ADV. 65]**

WIRE, Drop Wire (Iron, Bronze & Copperweld)—General Insulated Wire Co., Providence, R. I.—**[ADV. 66]**

WIRE, Insulated Drop, HT Bronze, Parapreno or Braid Insulation—Paragon Electric Co., Two Rivers, Wis.—**[ADV. 67]**

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7720 N. Sheridan Road,
Chicago 26, Illinois

Please forward complete information on the following products and services described in the June, 1949 issue of TELEPHONE ENGINEER AND MANAGEMENT. (Check information desired.)

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POSITION WANTED: My 24 years experience in the telephone field will pay dividends as your manager, plant engineer or plant superintendent. 46 years of age, good health and best of references. Write Box No. 8631 c/o Telephone Engineer.

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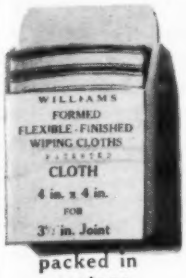

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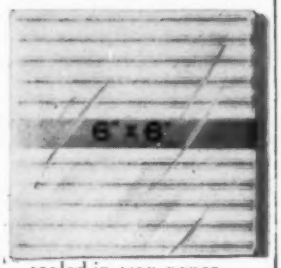

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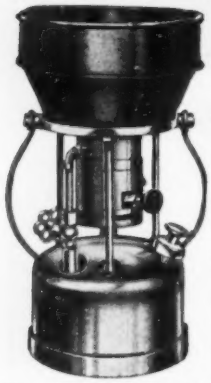

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HIGH-POLYMER PHYSICS

A Symposium

Edited by
DR. HOWARD A. ROBINSON
Published under the Auspices of
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•

Thirty-nine physicists and chemists, all prominent experts in their special fields, contributed to this symposium on the relatively new subject of high-polymer physics. The results discussed come largely from industrial research laboratories rather than from college research groups. The physicist had to help the chemist and vice-versa to explain the phenomena encountered in high polymers. This volume is the product of their cooperation.

Individual articles are devoted to the molecular structure, physical and physicochemical properties of natural and synthetic high polymers, e.g., glass, cork, rubber, textiles, certain plastics, synthetic resins and synthetic rubbers. The last part deals with scientific instruments used for making determinations and carrying out tests. Among the properties investigated are the mechanical, electrical, viscosity, dielectric, thermal, elastic, stress-strain, crystallization, tackiness, electrostatic, swelling, and thermodynamic characteristics of certain high polymers.

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Kellogg Switchboard Holds Dial Equipment School

Kellogg Switchboard & Supply Co., Chicago, recently conducted and completed the first 1949 course in Dial Equipment Training held at the company's Clearing district plant for Independent telephone company representatives. Eight men completed the course after two weeks of instruction and demonstration by D. B. Robison of the Kellogg Engineering department.

Attending the course were men from five states and Alaska. Among them were engineers, installers, officials and others representing Independent telephone companies which use Kellogg Relaymatic type central office equipment.

Carbon Arc Projection Picture Going Abroad

National Carbon Company, Inc., has announced that its motion picture, "Carbon Arc Projection", color by Technicolor, has been selected by the Office of International Information, Department of State, for distribution throughout 52 foreign countries and their dependencies.

The "Carbon Arc Projection" film demonstrates the optics of motion picture projection, what the carbon arc is and how it operates. Presented in beautiful color, the picture is expertly planned and executed so as to be educational and entertaining not only for motion picture technicians but also for schools, universities, technical societies and other exhibitors of educational films.

A. B. Chance Co. Changes Location of Eastern Office

The A. B. Chance Co., Centralia, Mo., recently announced the transfer of its Eastern Division sales office from New York City to 2003 Packard Building, 15th & Chestnut Sts., Philadelphia 2, Pa.

The new office will be headquarters for the company's Eastern Division sales manager, C. T. "Chuck" Nevins, and other Eastern Division salesmen covering the New England States.

New Parallel Drop Wire Development

Since the introduction of insulated drop wire into the telephone industry many years ago, there have been two schools of thought on the type of drop wire most suitable. One school has stuck to the idea of a twisted pair because of the theory that the twisted pair is less likely to pick up external noises and the other school using parallel drop wire basically because it is less expensive to install and easier to handle. The twisted pair has the advantage that in making connections to the terminal blocks or bare wire the insulation is completely protected up to the point of stripping by either the Neoprene jacket or weather proof jacket. The conventional parallel wire has the disadvantage that when the drop wire is slit to make the connection is necessary to slit the jacket thereby exposing the rubber insulation on this segment of the wire.

Various devices have been introduced to protect this slit portion of the drop wire which partially nullifies the lower installation cost of the parallel type wire over the twisted pair.

The Whitney Blake Company has recently announced a new type of parallel drop wire which provides the advantages of twisted pair in so far as providing complete protection of the rubber insulation after the drop wire is slit and gives full benefit of the

New parallel drop wire announced by Whitney Blake Co.

lower installation cost of a parallel drop wire. This new wire which is coded by Whitney Blake as its 17 TIBP or 18 TICWP construction, is of a figure 8 cross section. Each conductor is teleplated and then insulated with a rubber insulation. These two conductors are then jacketed with a Neoprene jacket in such a fashion that there is complete Neoprene coverage around each separate conductor with a thin web of Neoprene between the two conductors. When this web is slit to permit connection, the Neoprene jacket is left intact around each separate conductor. Because of this type of construction, the cost to the telephone industry of this new and revolutionary Neoprene jacket drop wire is less than corresponding conductor size wire of the old fashioned weather proof construction. The drop wire is available in No. 17 Bronze and No. 18 Copperweld and is suitable for use with the conventional P-Clamps now available. No special connections or clamps are necessary.

A special slitter will be furnished by Whitney Blake for ease in installation of the drop wire.

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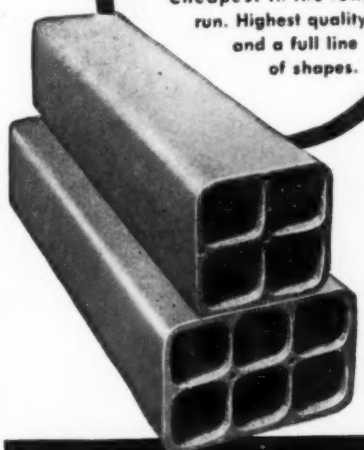

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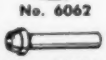
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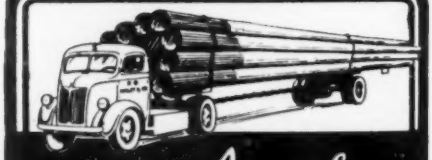

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THE BACK OF THE BOOK

By JOHN G. REYNOLDS
Managing Editor

Cannibalistic Government Unmasked . . . Anyone who is interested in the way agencies of the Federal government are wasting the taxpayers' money should read an article in the Saturday Evening Post of May 14, called "The Battle That Squanders Billions," by Leslie A. Miller, former Governor of Wyoming and Chairman of the Natural Resources Committee of the Hoover Commission.

The "battle" Mr. Miller refers to is between the Army Engineers and the Reclamation Bureau. Here is a small part of what he has to say: "The two agencies are so violently jealous of each other that an extravagant and wholly senseless competition has sprung up . . . In their indecent zeal to extend their empires, both agencies are guilty of underestimating—apparently—deliberately—the cost of the projects they propose to build . . ."

Mr. Miller estimates government owned water-resources-development projects now in construction and planning stages would cost more than $52,000,000,000—and that does not include $5,000,000,000 which has already been spent on completed projects!

Here is a startling example of what can happen when government agencies start to compete with each other for power, prestige and money—and when the socialists see an opportunity to advance their ideology under camouflage. The device of using such attractive words as "reclamation" and "flood control" to cover projects whose big purpose is the socialization of an industry is an old one, of which TVA is the most conspicuous illustration. This cannibalistic practice of government in devouring its own taxpaying industries has caused the waste of billions in the past. It will cause the waste of tens of billions in the future unless it is checked, not to mention the fact that it will destroy a free nation as we have known it.

• • •

Are You in Good Voice? We await with interest and an open mind the outcome of the telephone company's experiment as the Emily Post of communications. The Southwestern Bell has prepared two polite brochures on the finer points of speaking into a mouthpiece, designed to encourage wire courtesy and eliminate waste vocal effort.

Commendable though this crusade may be, we suspect it will inevitably be the victim of crossed wires and wrong numbers. Admittedly the American habit of greeting a telephone caller with a meaningless "hello" is inefficient, but it has its points. For example, a man anticipating a call from a bill collector can take refuge in an anonymous "hello" until the caller identifies himself. The same bit of strategy often works to the benefit of a young lady expecting calls from two swains in the same evening.

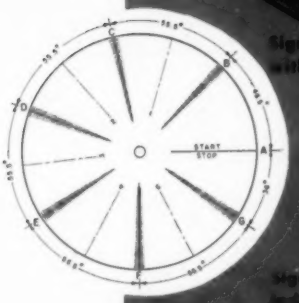
The telephone company also stresses the problem of being in good voice for telephone conversations. Here is a virgin field for reform. There are those who confidently attempt to combine a telephone message with side remarks to others. Then there are the pests who manage to give a convincing imitation of a man with a mouth full of hot mush. But our own pet aversion is the telephone conversationalist without terminal facilities, who settles down to an hour chat when we are the busiest. If something can be done about these pests, we shall applaud with enthusiasm the crusade.

Telegraph Maintenance Men:

HERE'S THE ONLY **PORTABLE** TELEGRAPH TROUBLE-SHOOTER SOLD

That provides a PERMANENT Record of Transmission Quality

SIGNAL ANALYZER



Signal Analyzer chart with perfect signals

Signal Analyzer chart showing signal error

Portable . . . Easy to Use

Light, simple and compact in design and construction. Unit is 9"x6"x8". Weighs only 18 lbs. Can be moved easily from place to place as needed. Easy to connect, easy to operate. No adjustments or complicated connections required—just plug in and turn on.

Provides Permanent Record

Records signals permanently on paper chart for detailed analysis, quantitative measurement and future reference or comparison. Permits observation of distortion on working circuits and quick identification of sources of error. Useful in alignment and trouble-shooting.

Checks Transmission Quality

Indicates any type of signal irregularity in 7-unit or 7.4-unit code start-stop telegraph circuits. Records distortion on every individual signal pulse as it is received. Can be used to determine condition of signals from transmitting keyboards or regenerative repeaters. Checks operation of receiving printers. Helps assure high transmission quality and continuity by detecting incipient troubles before printing failure occurs.

Time-Saving . . . Economical

Saves circuit time by helping to correct error quickly. Saves time of operating, service and maintenance personnel.

J. H. BUNNELL & Co.

215 FULTON STREET NEW YORK 8, N. Y.

DEPT. 13

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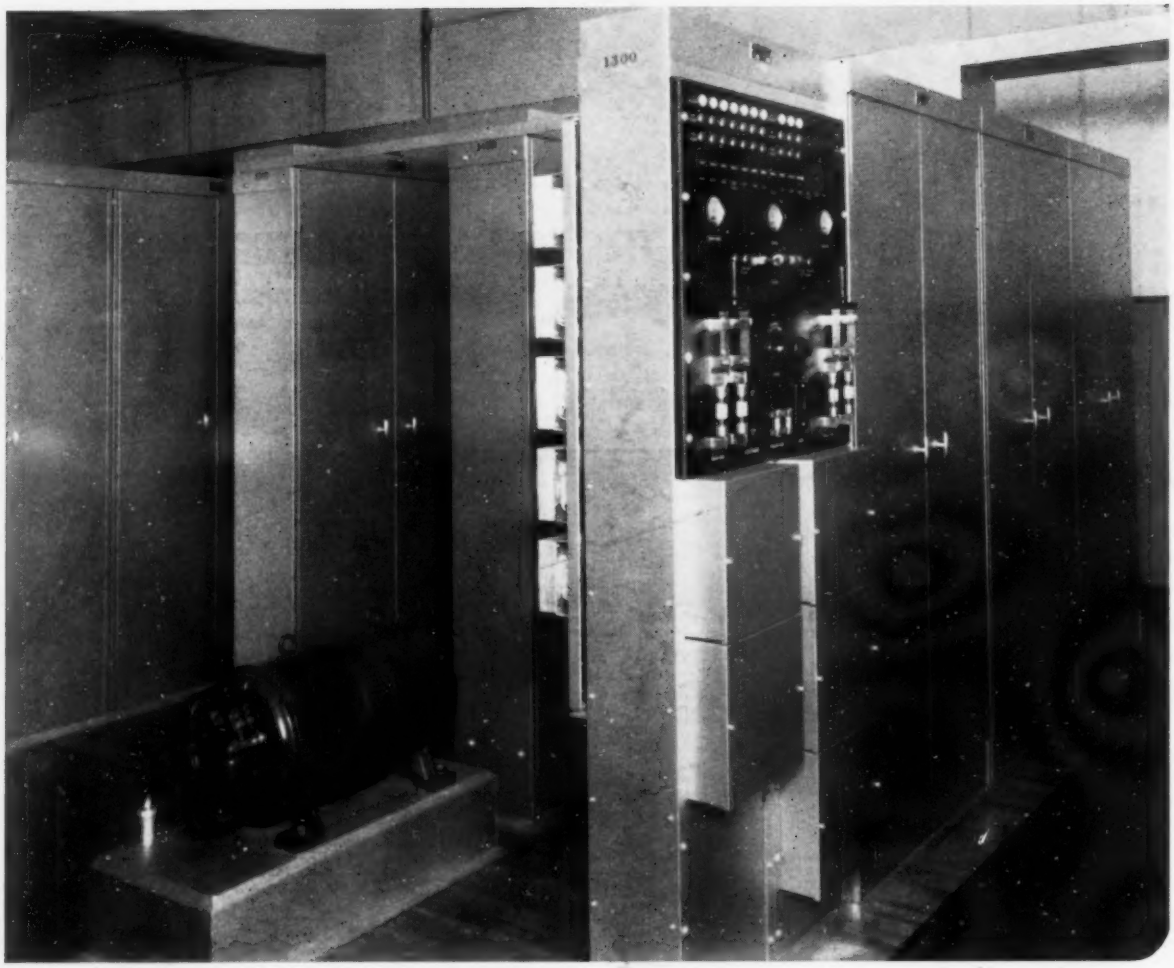

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